


JOHN H. THOMSEN
No. 0033
REGISTERED PROFESSIONAL ENGINEER
2-22

S0-0.0

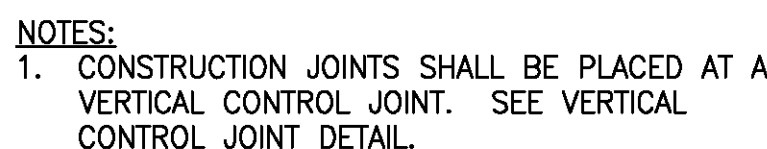


Office of Facilities

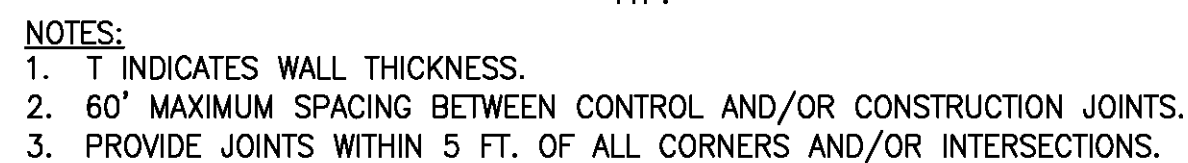
Department of



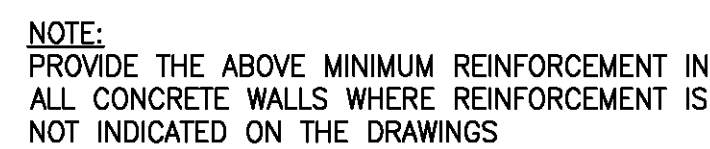
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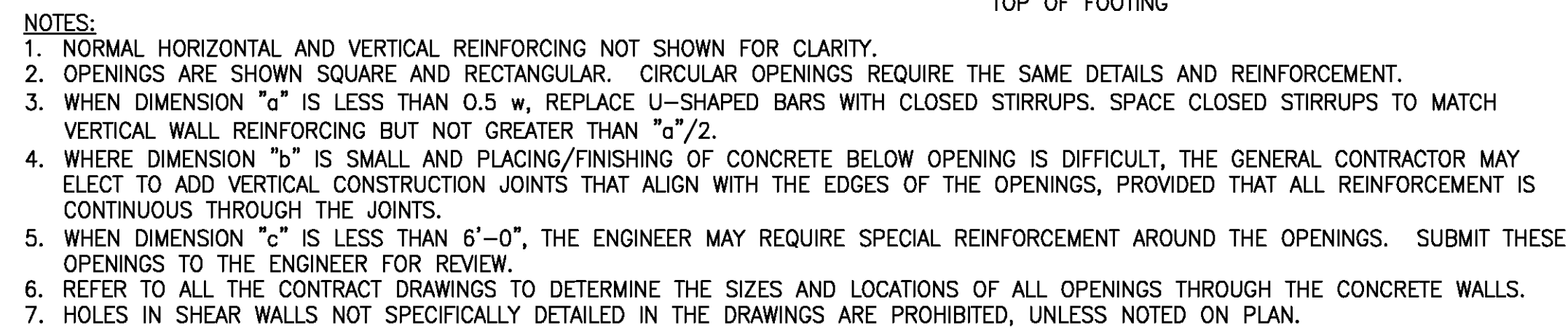
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6



3

The diagrams illustrate three types of pipe bends:

- 90 DEGREE HOOK:** A U-shaped bend with a 90-degree angle. Dimensions include a vertical leg of $12d_b$, a horizontal leg of $4d_b$, and a hook length of $2\frac{1}{2}d_b$. The bend is labeled "90 DEGREE HOOK".
- 180 DEGREE HOOK:** A U-shaped bend with a 180-degree angle. Dimensions include a vertical leg of $4d_b$, a horizontal leg of $2\frac{1}{2}d_b$, and a hook length of $2\frac{1}{2}d_b$. The bend is labeled "180 DEGREE HOOK".
- OFFSET BEND:** A bend that offsets the pipe by a distance d_b over a length of $6d_b$. The bend is labeled "OFFSET BEND".

1. ALL BENDS SHALL BE MADE COLD AND SHALL BE MADE PRIOR TO PARTIAL EMBEDMENT IN CONCRETE.
2. d_b = BAR DIAMETER.
3. D = BEND DIAMETER, MEASURED ON THE INSIDE OF BAR.

90 DEGREE HOOK

135 DEGREE HOOK

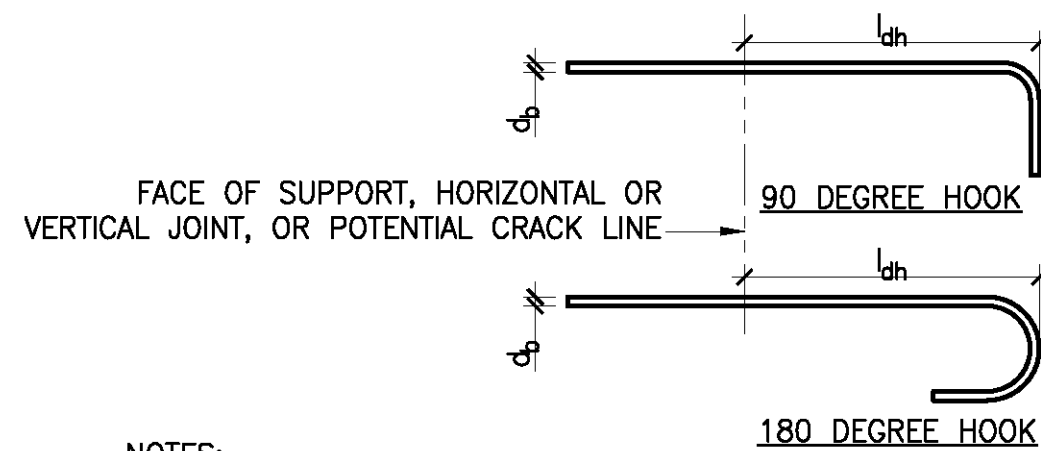
1. ALL BENDS SHALL BE MADE COLD AND SHALL BE MADE PRIOR TO PARTIAL EMBEDMENT IN CONCRETE.
2. d_b = BAR DIAMETER.
3. D = BEND DIAMETER. MEASURED ON THE INSIDE OF BAR.

2 TYPICAL TIE AND STIRRUP HOOKS IN CONCRETE AND MASONRY

NOTES:

1. REFER TO HOOKED REINFORCEMENT TENSION DEVELOPMENT LENGTH SCHEDULE IN CONCRETE WHEN THE STRAIGHT DEVELOPMENT LENGTH IN TENSION CANNOT BE ACCOMMODATED IN THE CONCRETE SECTION.
2. TABULATED DEVELOPMENT LENGTHS ARE BASED ON REINFORCING STEEL YIELD STRENGTH $F_y=60$ KSI AND NORMAL WEIGHT CONCRETE. LAP SPlice LENGTHS ARE CLASS B, UNLESS OTHERWISE NOTED IN DRAWINGS.
3. TOP BARS ARE DEFINED AS HORIZONTAL BARS WITH MORE THAN 12 INCHES OF FRESH CONCRETE CAST IN THE MEMBER BELOW THE BARS TO BE DEVELOPED OR SPLICED. THE TOP BAR FACTOR SHALL BE APPLIED TO HORIZONTAL BARS IN WALLS.
4. WHEN BARS OF DIFFERENT SIZE ARE LAP SPLICED IN TENSION, SPLICE LENGTH SHALL BE THE LARGER OF ℓ_d OF THE LARGER BAR AND TENSION LAP SPLICED LENGTH OF THE SMALLER BAR.
5. ALL TABULATED VALUES ARE MINIMUM LENGTHS, IN CASE OF CONFLICT WITH PLANS, SECTIONS, OR DETAILS, USE THE LONGER LENGTH.
6. ϕ_b = BAR DIAMETER.
7. ℓ_d = DEVELOPMENT LENGTH.
8. ADJUST TABULATED LENGTHS BY THE FOLLOWING MULTIPLICATION FACTORS WHERE APPLICABLE. NOTE THAT FACTORS ARE CUMULATIVE: (E.G. $1.30 \times 1.50 = 1.95$)

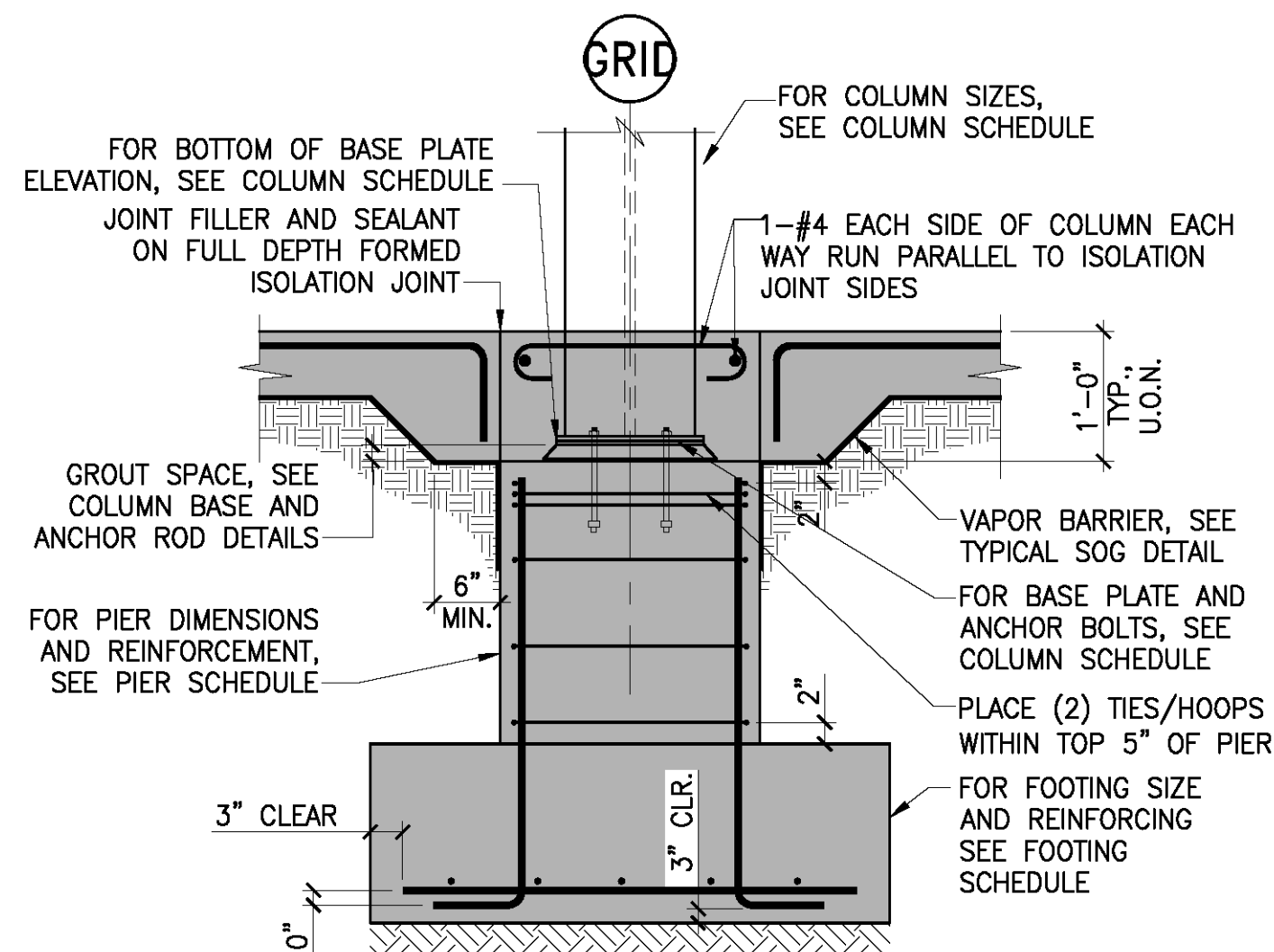
A. LIGHT WEIGHT CONCRETE:	1.33
B. 3 OR LESS BUNDLED BARS:	1.20
C. 4 OR MORE BUNDLED BARS:	1.33
D. CLEAR SPACING LESS THAN $2\phi_b$ AND CLEAR COVER LESS THAN ϕ_b :	1.50
E. CLASS A LAP SPLICED:	0.77
F. EPOXY COATED BARS:	1.50
9. WELDED AND/OR MECHANICAL SPLICES MAY BE USED IF APPROVED BY THE STRUCTURAL ENGINEER OF RECORD PROVIDED THAT THE SPLICE IS CAPABLE OF DEVELOPING AT LEAST 125% OF THE YIELD STRENGTH OF THE LARGER BAR IN TENSION. WHERE WELDED AND/OR MECHANICAL SPLICES ARE TO BE USED, THE GENERAL CONTRACTOR SHALL SUBMIT FULL DATA ON THE PROPOSED MATERIAL, PROCEDURES, AND INSTALLATION INSTRUCTIONS TO THE ENGINEER FOR REVIEW AS A SHOP DRAWING SUBMISSION.
10. USE MECHANICAL COUPLERS FOR #14 AND LARGER BARS.
11. FOR LAP SPLICES IN CONCRETE MASONRY, SEE MASONRY REINFORCEMENT DETAILS.



3. SEE TYPICAL REINFORCEMENT BEND DETAIL FOR ADDITIONAL INFORMATION.
4. TABULATED DEVELOPMENT LENGTHS ARE BASED ON REINFORCING STEEL YIELD STRENGTH ($F_y = 60$ KSI) AND NORMAL WEIGHT CONCRETE.
5. ALL TABULATED VALUES ARE MINIMUM LENGTHS. IN CASE OF CONFLICT WITH THE PLANS, SECTIONS, OR DETAILS, USE THE LONGER LENGTH.
6. d_b = BAR DIAMETER
7. l_{db} = TENSION DEVELOPMENT LENGTH (HOOK BARS)
8. ADJUST TABULATED LENGTHS BY THE FOLLOWING MULTIPLICATION FACTORS WHERE APPLICABLE. NOTE THAT THE FACTORS ARE CUMULATIVE: (e.g. $1.33 \times 1.20 = 1.60$)
 - A. REINFORCING BAR STRENGTH OTHER THAN 60 KSI: $(F_y/60,000)$
 - B. LIGHT WEIGHT CONCRETE: 1.20
 - C. EPOXY COATED BARS: 1.20

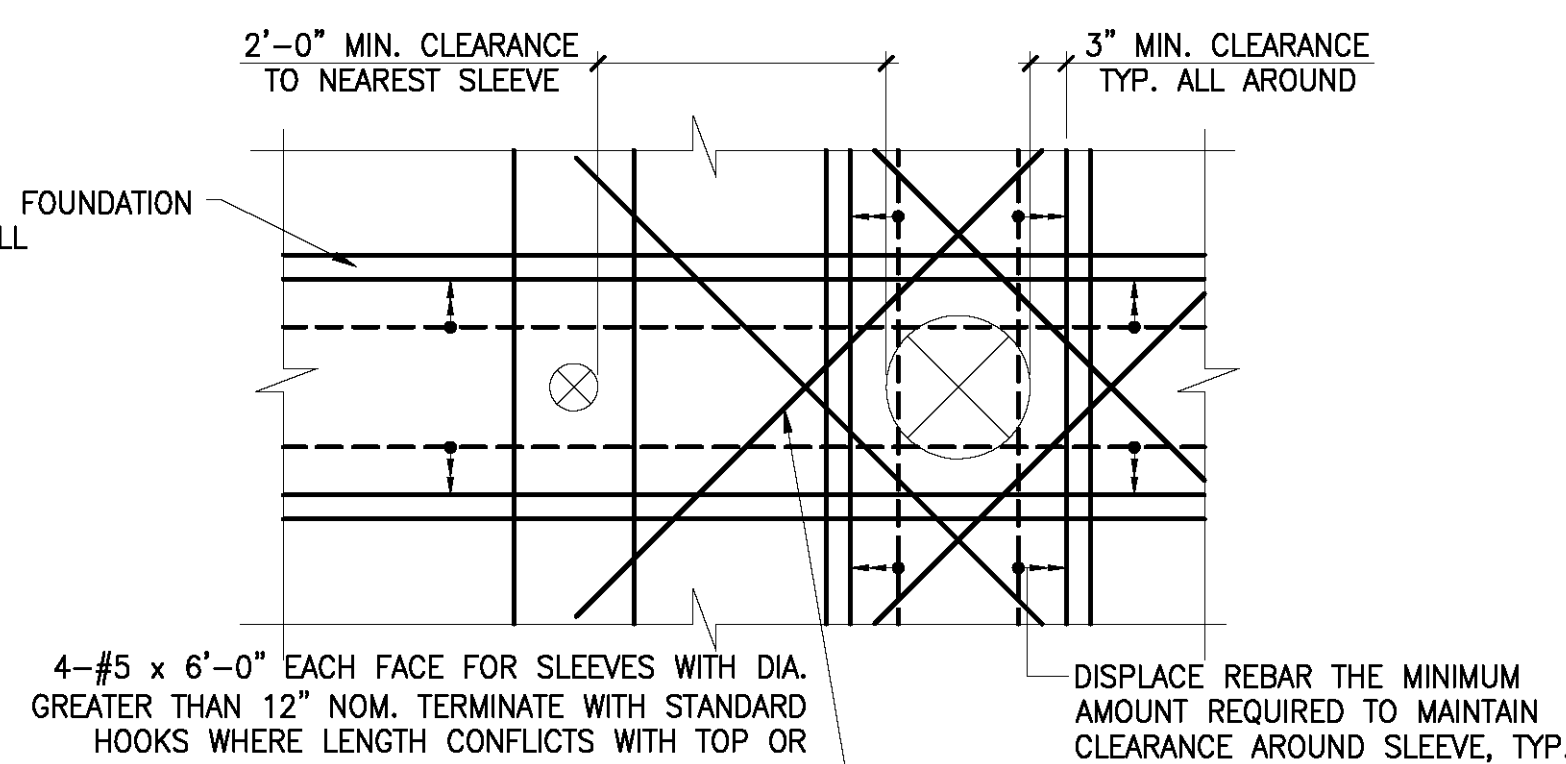
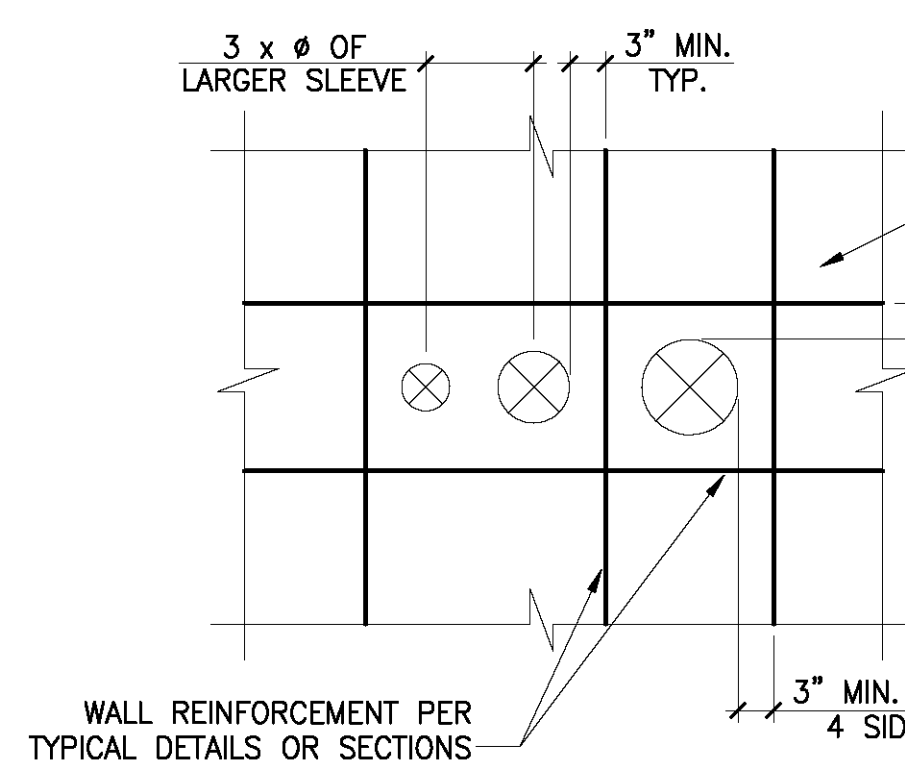
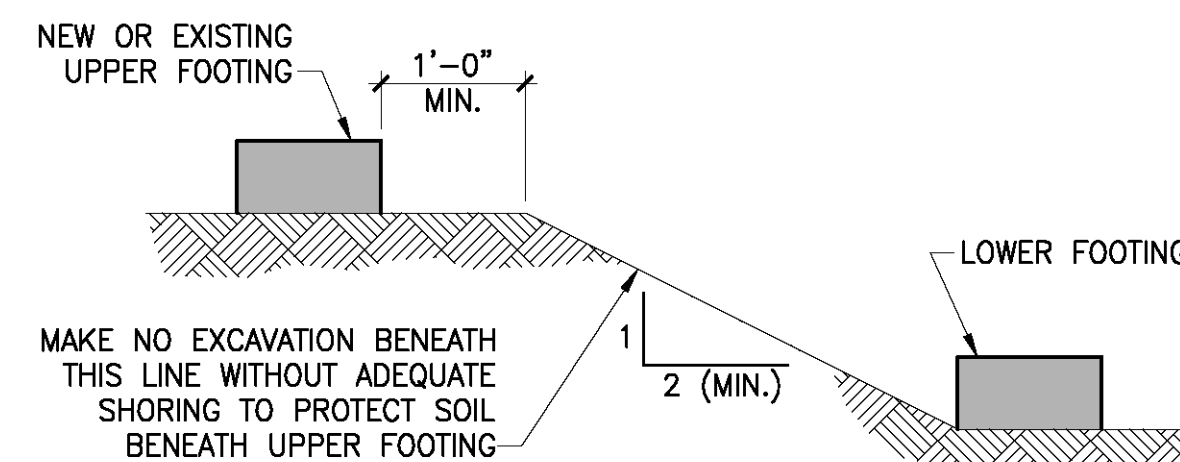
HOOKED REINFORCEMENT TENSION DEVELOPMENT LENGTH SCHEDULE IN CONCRETE

HOOKED REINFORCEMENT TENSION DEVELOPMENT LENGTH SCHEDULE IN CONCRETE

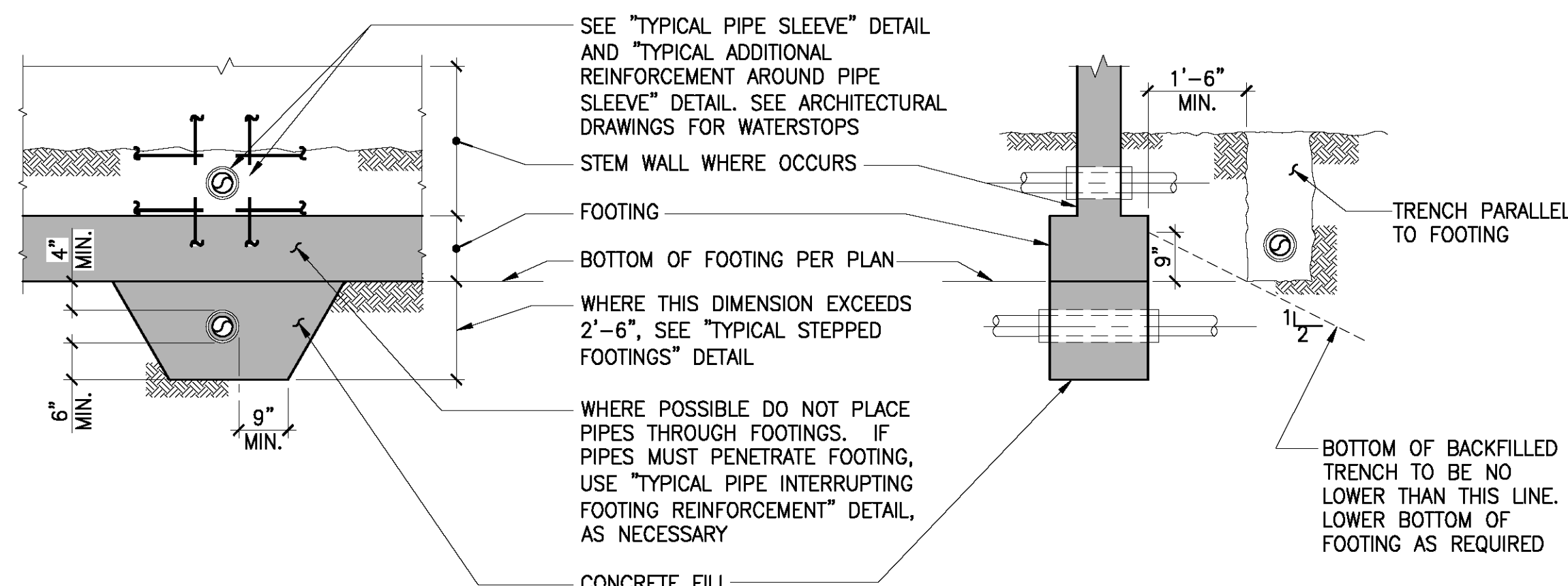


NOTES:

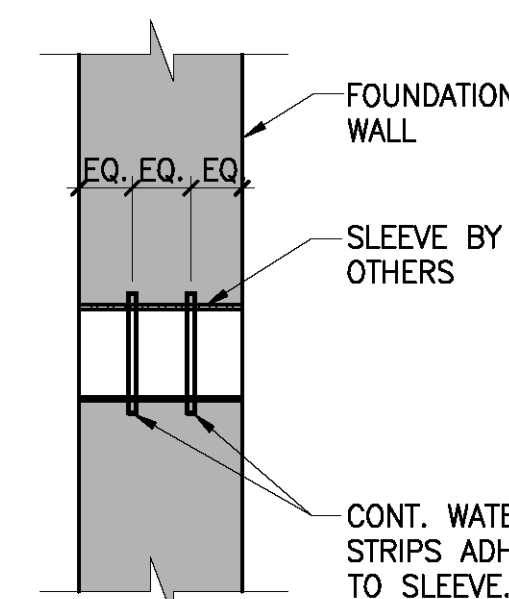
1. DO NOT USE SOIL TO FORM FOOTING SIDES.
2. MATCH CORNERS OF ISOLATION JOINT WITH CONTROL AND CONSTRUCTION JOINTS TERMINATING AT COLUMN.



INTERIOR STEEL COLUMN FOOTING WITH PIER



10 TYPICAL CONDITIONS FOR PIPES BELOW GRADE



1. REVIEW ALTERNATE SCHEMES FOR WATERPROOFING SLEEVES WITH ARCHITECT AND ENGINEER.

PIPE SLEEVE DETAIL THROUGH FOUNDATION WALL

KEY PLAN

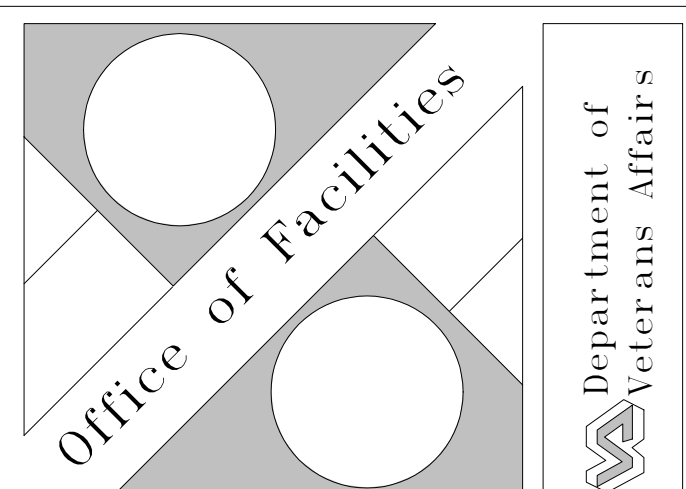
Drawing Title	
TYPICAL CONCRETE DETAILS	
Drawn By:	CMB
Checked By:	KAK/MJB
Approved By:	JHT

Project Title REPLACE/RELOCATE DEFICIENT ICU	
Building # 1	Scale
Location PROVIDENCE, RI	

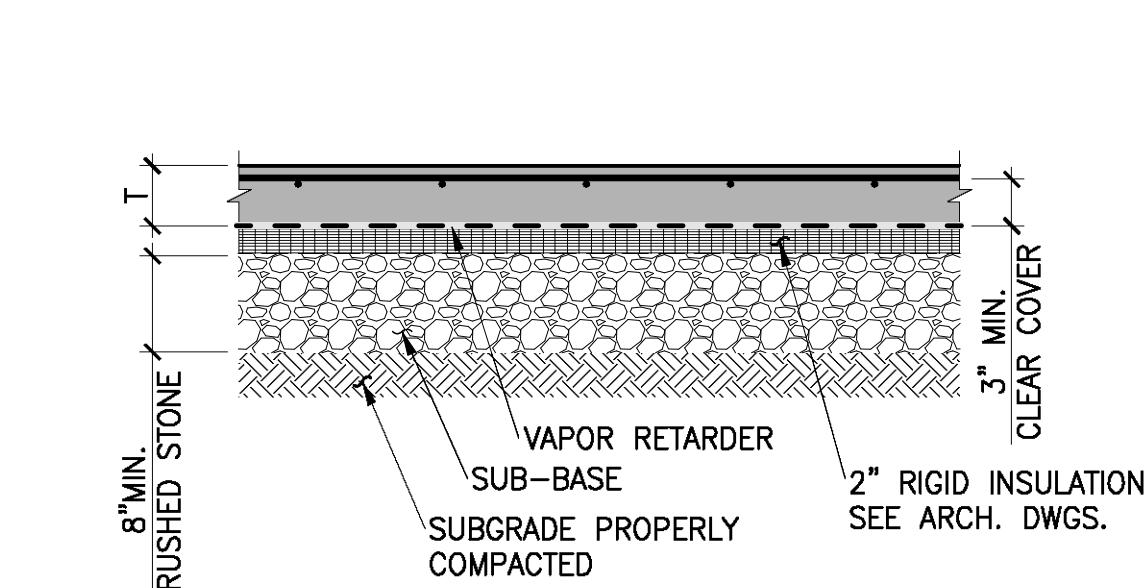
Date
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VA Project No.
650-324

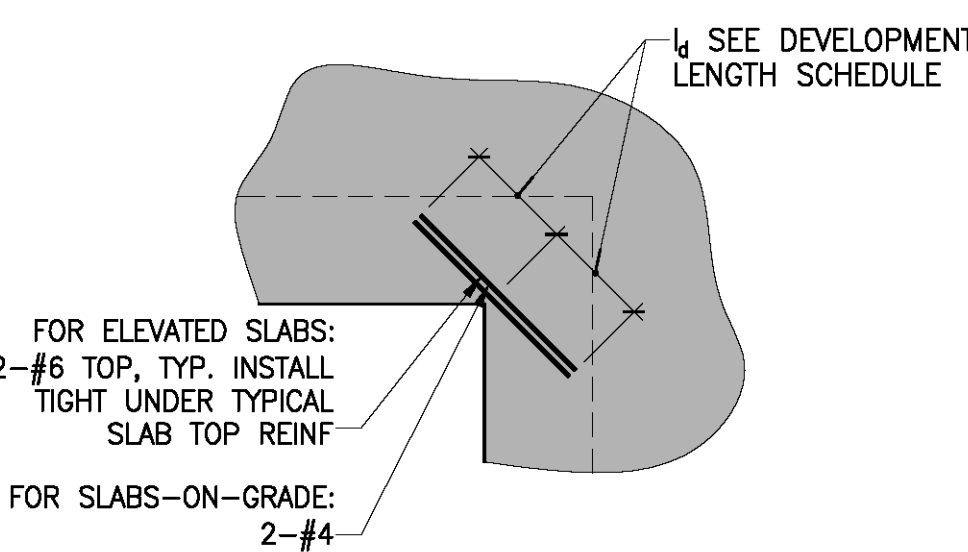
Drawing No.
S0-1.1



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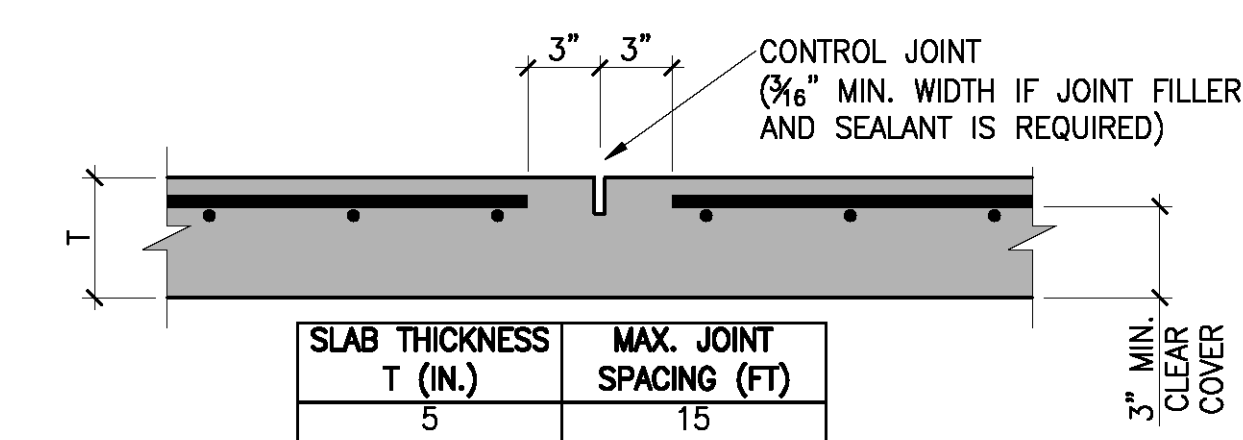


- 1 TYPICAL SLAB-ON-GRADE DETAIL NTS



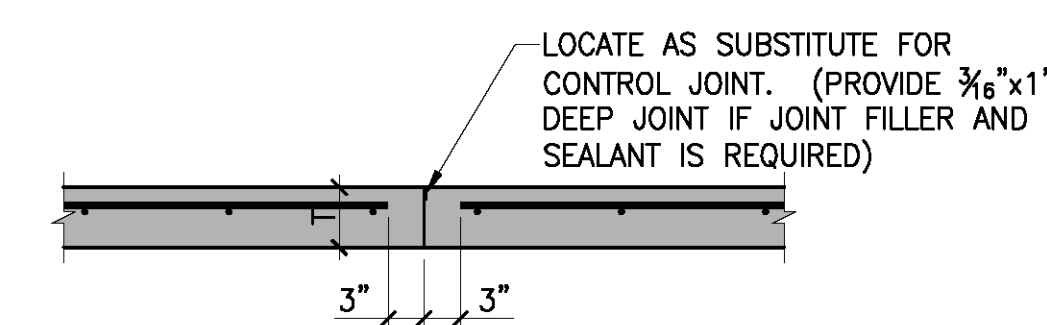
NOTE:
DETAIL APPLIES AT OPENINGS AND CORNERS OF SLAB DEPRESSIONS.

6 TYPICAL SLAB REINFORCEMENT
AT RE-ENTRANT CORNER



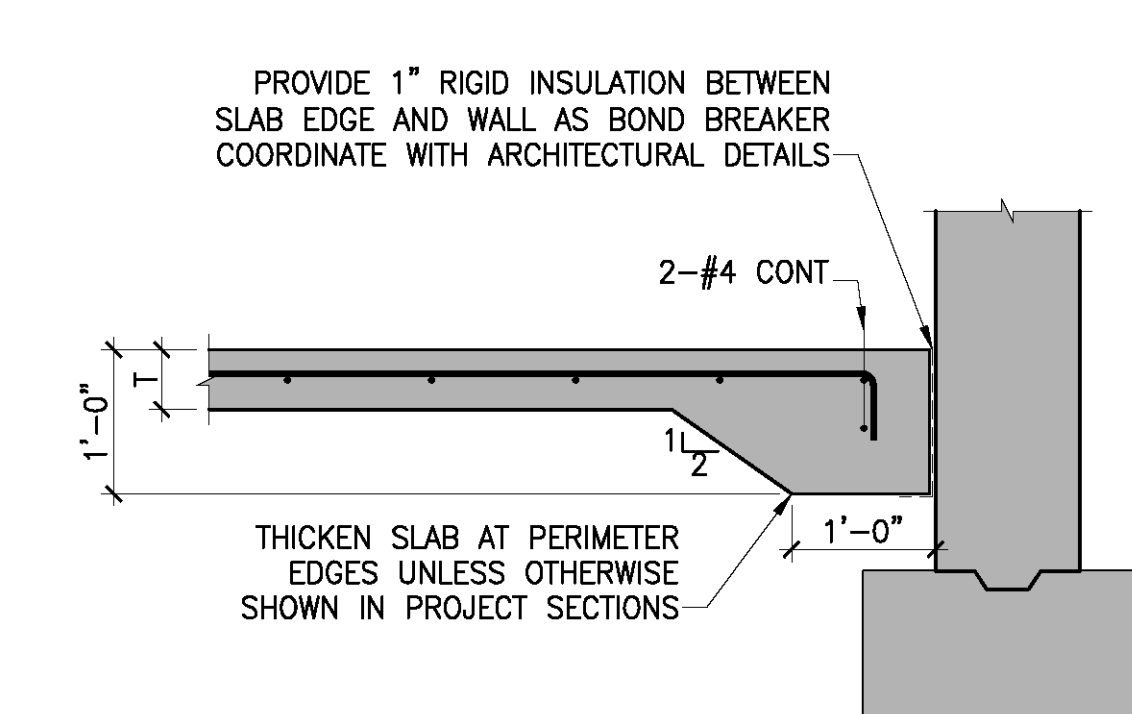
- NOTES:**
1. SAW CUT 1" (MIN.) DEEP JOINT WITH EARLY ENTRY SAW AS SOON AS POSSIBLE AFTER FINISHING SLAB. (4 TO 8 HOURS MAX.)
 2. DETAIL REINFORCEMENT TO STOP AT JOINTS AS INDICATED.
 3. PREPARE CONTROL JOINTS ON A RECTANGULAR GRID AND SUBMIT LAYOUT OF CONTROL JOINTS FOR APPROVAL. UNLESS JOINT LOCATIONS ARE OTHERWISE SPECIFIED, RE-ENTRANT CORNERS ARE DISCOURAGED. WHERE UNAVOIDABLE, PROVIDE CORNER BARS PER DETAIL. TYPICAL SLAB REINFORCEMENT AT RE-ENTRANT CORNER.
 4. ASPECT RATIO OF RECTANGLES SHALL NOT EXCEED 1.25.
 5. USE PLANS, GENERAL NOTES AND/OR SPECIFICATIONS FOR JOINT FILLER AND SEALANT REQUIREMENTS.
 6. REFER TO DETAILS GRAPHICALLY. REFER ELSEWHERE FOR SIZE AND SPACING.
 7. SEE GENERAL NOTES FOR ADDITIONAL REINFORCING BAR CLEAR COVER REQUIREMENTS.

2 CONTROL JOINT IN SLAB-ON-GRADE

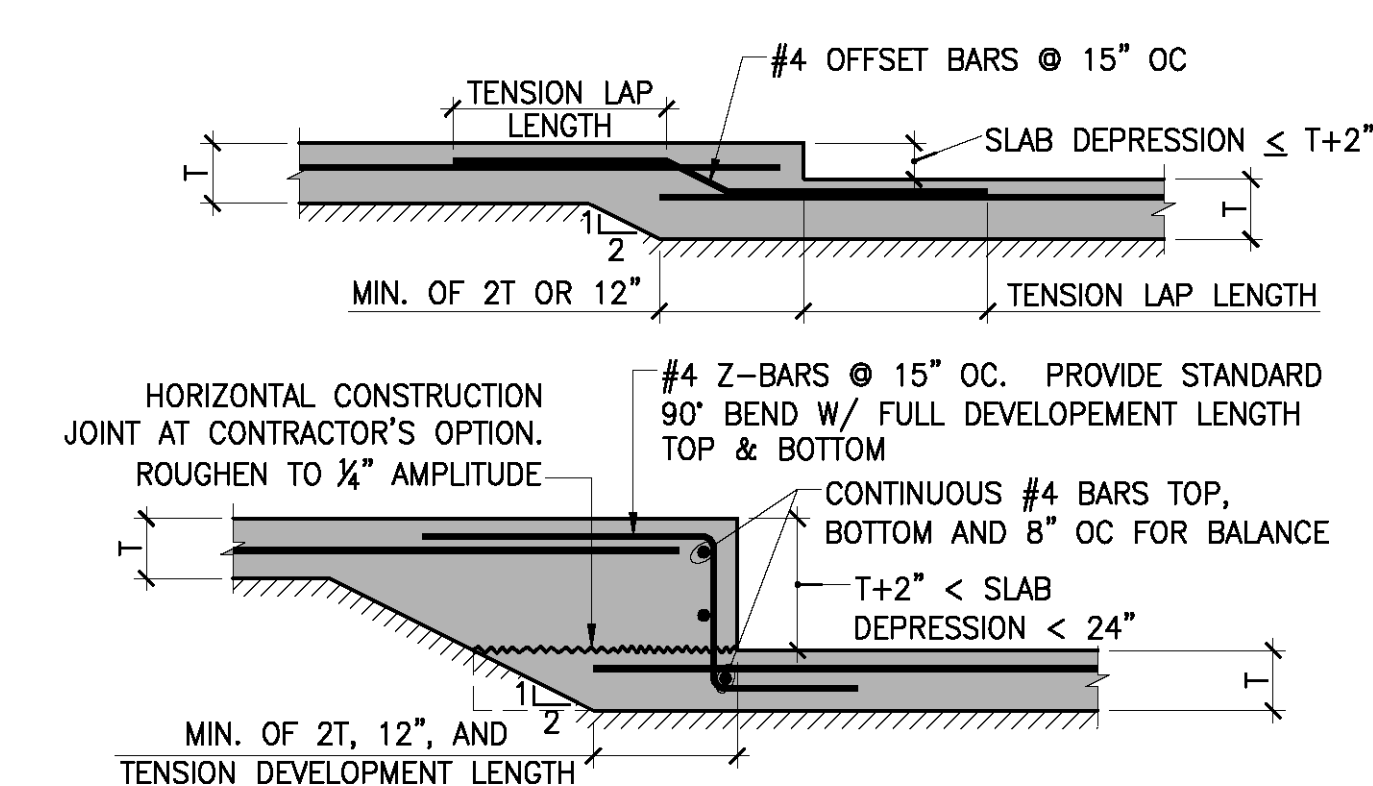



- NOTES:**
1. DETAIL REINFORCEMENT TO STOP AT JOINT.
 2. SUBMIT LOCATIONS OF CONSTRUCTION JOINTS FOR APPROVAL.
 3. ALLOW A MINIMUM OF 72 HOURS BETWEEN ADJACENT POURS.
 4. SEE SPECIFICATIONS FOR JOINT FILLER AND SEALANT REQUIREMENTS.

3 SLAB-ON-GRADE CONSTRUCTION JOINT

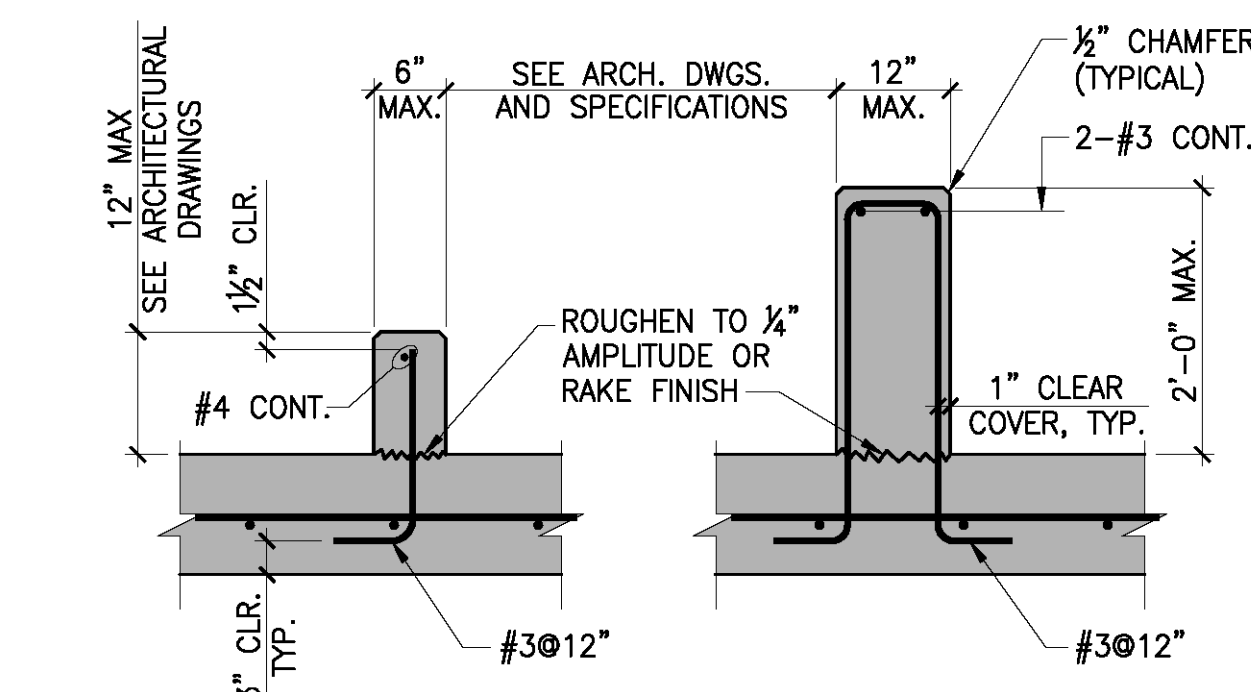


4 THICKENED SLAB-ON-GRADE AT PERIMETER NTS



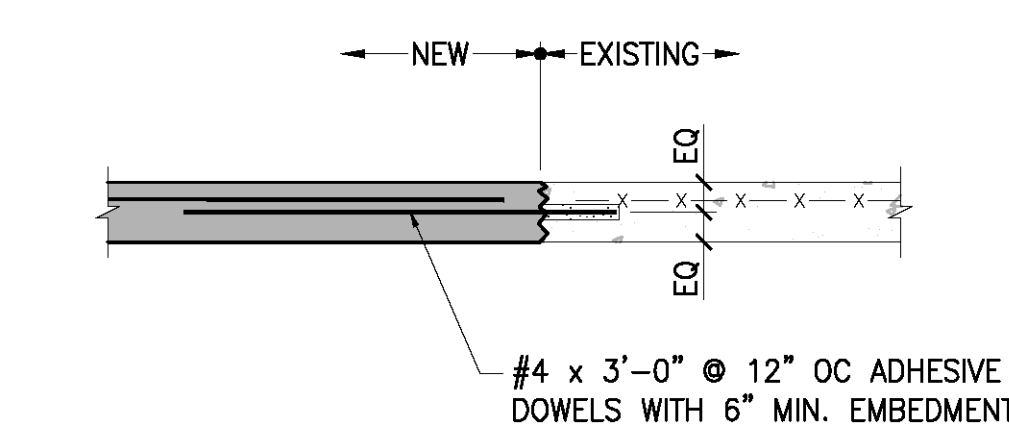
- NOTES:
1.  ON DETAIL INDICATES SUBGRADE. REFER TO TYPICAL SLAB-ON-GRADE DETAIL, GENERAL NOTES AND/OR SPECIFICATIONS.
 2. SEE PLANS FOR SLAB CONSTRUCTION.

5 DEPRESSIONS AT SLAB-ON-GRADE NTS

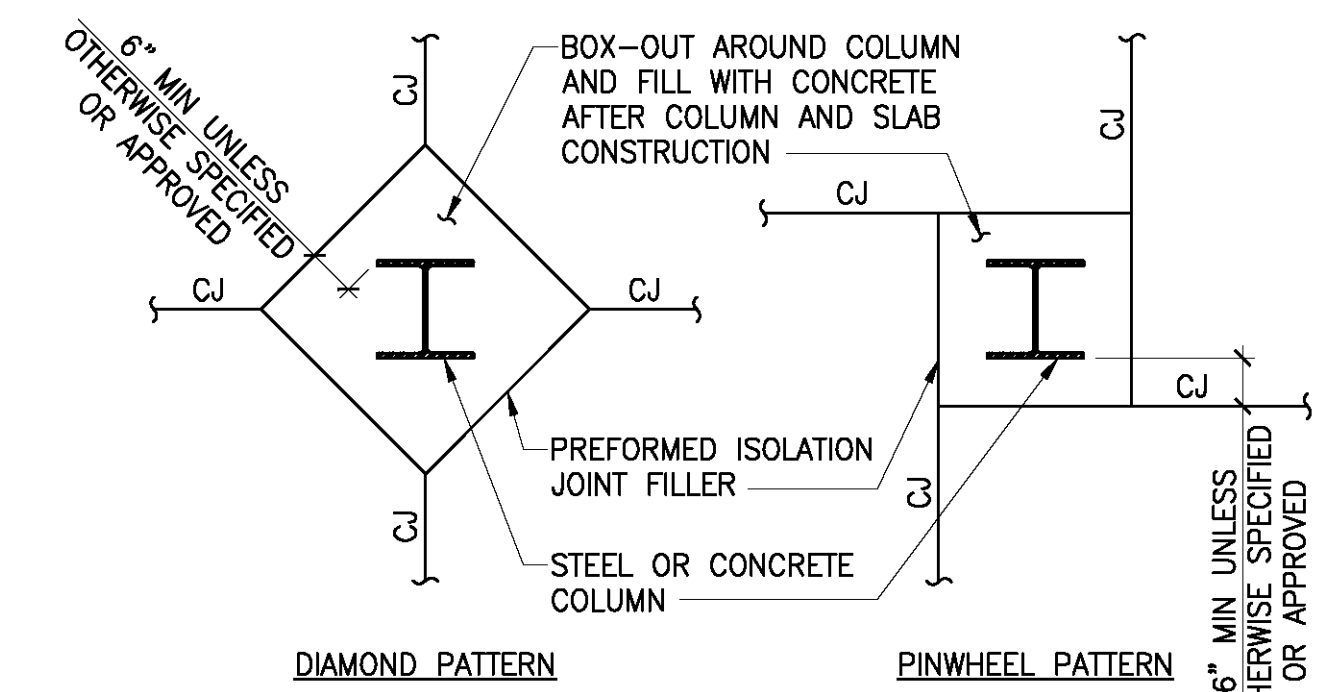


- NOTES:
1. ADHESIVE DOWELS ARE AN ACCEPTABLE ALTERNATIVE. MATCH REINFORCING BAR SIZE AND SPACING SHOWN. PROVIDE A MINIMUM EMBEDMENT OF 2½".

8 CONCRETE CURB AT SLAB-ON-GRADE
SIMILAR AT ELEVATED CONCRETE SLAB NTS

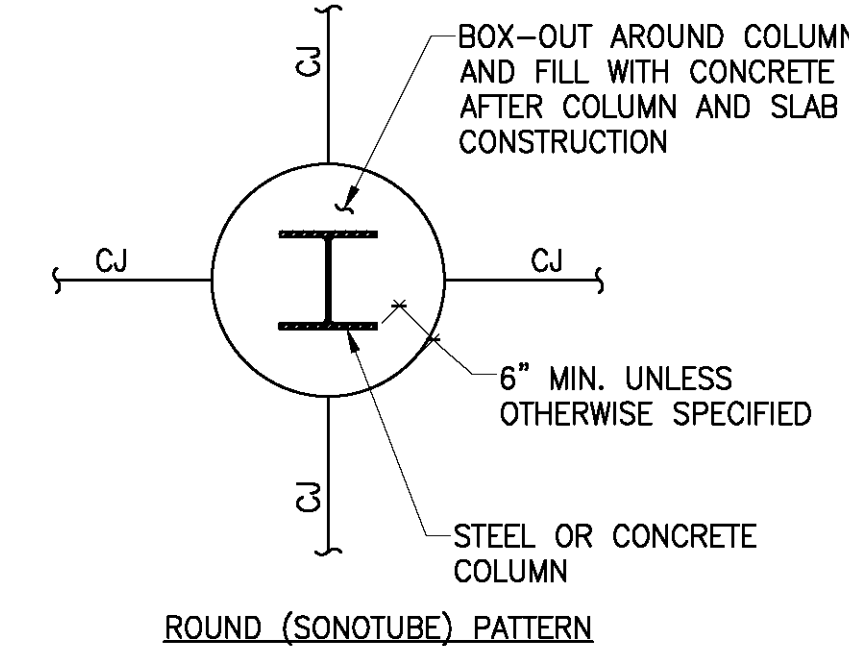


9 SLAB-ON-GRADE CONNECTION TO (E) SLAB NTS



- NOTES:**
1. REMOVE TOP INCH OF PREFORMED ISOLATION JOINT FILLER AND SEAL JOINT AS REQUIRED FOR CONTROL JOINTS.
 2. AT PINWHEEL PATTERN, CONTRACTOR HAS OPTION OF PLACING ISOLATION JOINT TIGHT TO COLUMN AND SAW CUT PINWHEEL PATTERN.

7 SLAB-ON-GRADE ISOLATION JOINT
DETAILS AT COLUMNS NTS



8 CONCRETE CURB AT SLAB-ON-GRADE
SIMILAR AT ELEVATED CONCRETE SLAB NTS

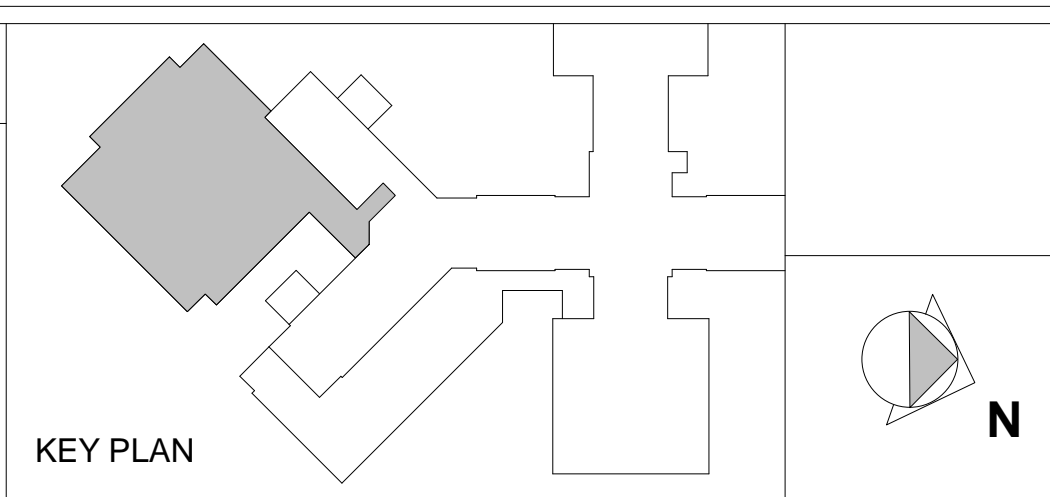


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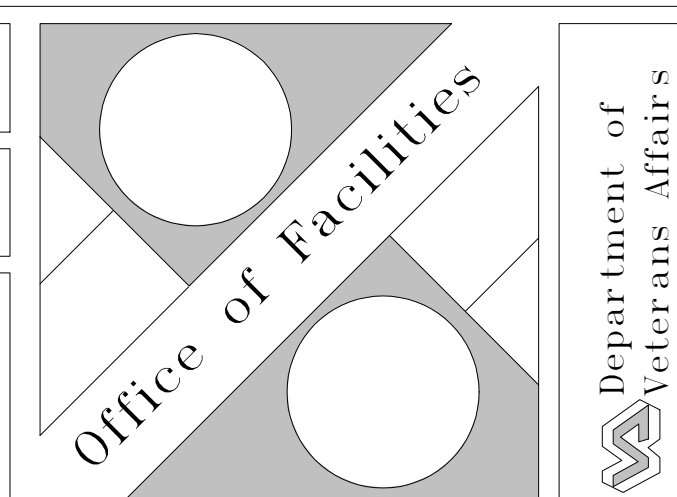
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TYPICAL CONCRETE DETAILS	
Drawn By:	CMB
Checked By:	KAK/MJB
Approved By:	JHT

Project Title REPLACE/RELOCATE DEFICIENT ICU	
Building # 1	Scale
Location PROVIDENCE, RI	

Date
2/27/2015

VA Project No.
650-324

Drawing No.
S0-1.2



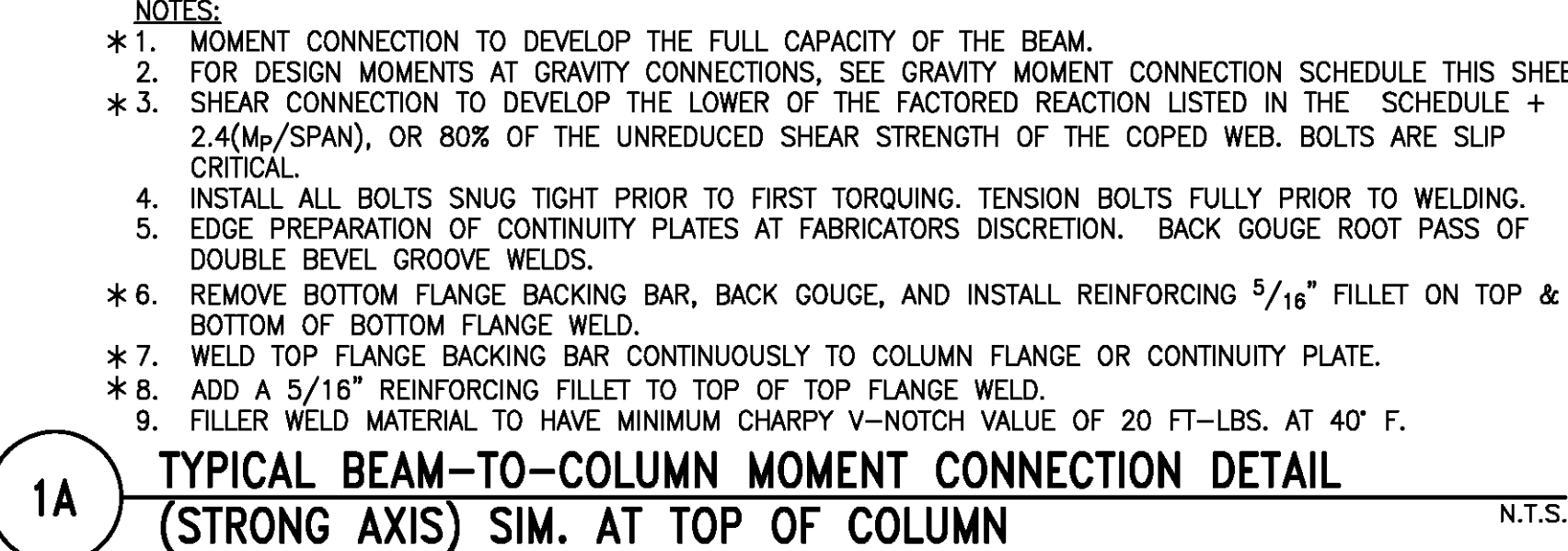
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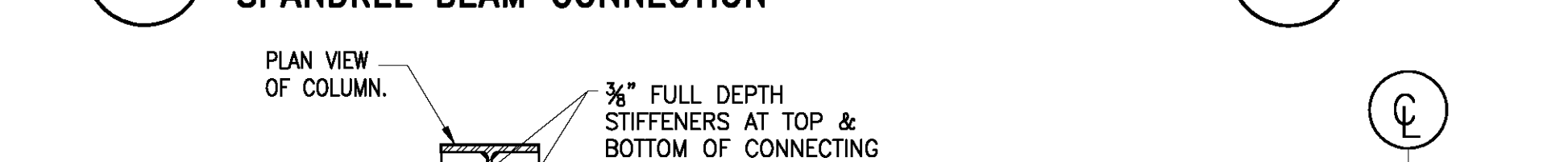
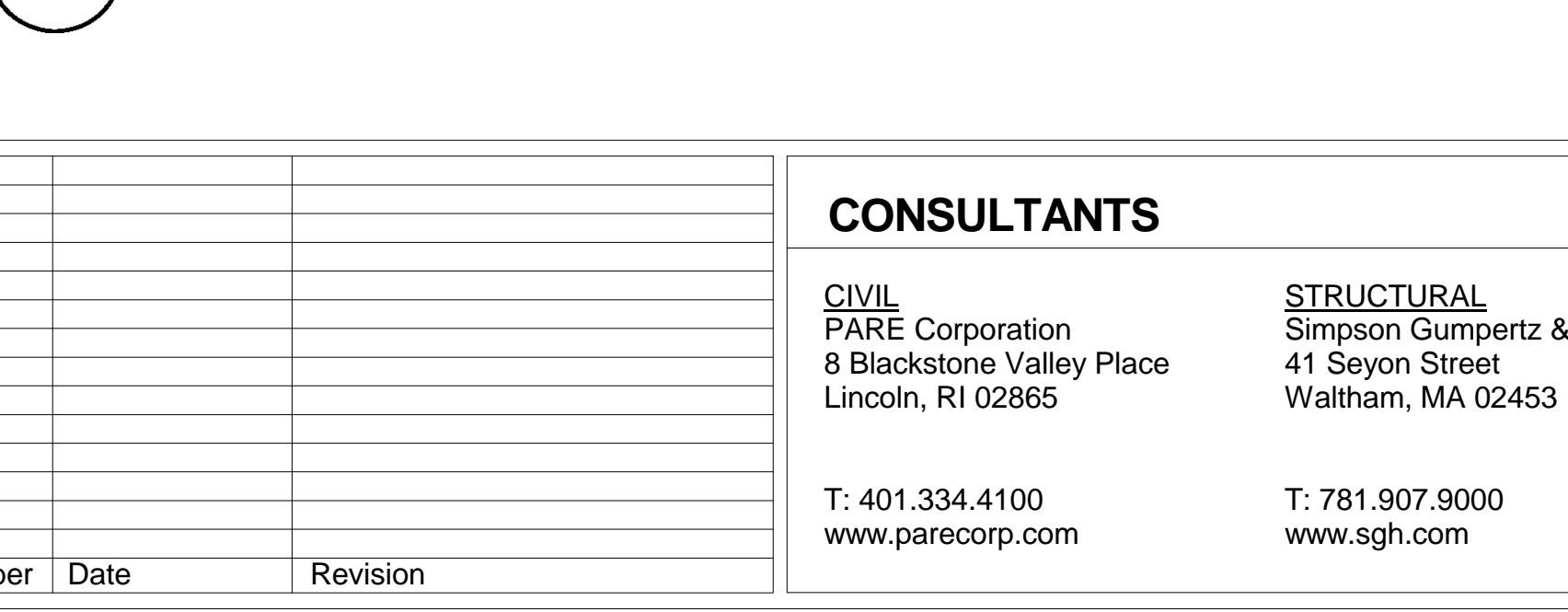
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2-27-20



NOTES:

1. LOADS IN THIS TABLE HAVE BEEN FACTORED IN ACCORDANCE WITH SECTION 2.3 OF ASCE 7-10.
2. SEE GENERAL NOTES FOR ADDITIONAL INFORMATION.
3. BEAM REACTIONS SHOWN ON PLAN TAKE PRECEDENT OVER THOSE SHOWN IN THIS TABLE. FOR THOSE SHOWN ON PLAN, PROVIDE A HORIZONTAL FACTORED TENSILE FORCE EQUAL TO $\frac{3}{8}$ THE VERTICAL FACTORED LOAD UDN. VERTICAL AND HORIZONTAL LOADS NEED NOT BE ASSUMED TO ACT CONCURRENTLY.
4. SEE DETAILS AND SECTIONS FOR BEAMS REQUIRING FULL DEPTH SHEAR CONNECTIONS.
5. FIELD WELDED CONNECTIONS MAY BE USED IN LIEU OF BOLTED CONNECTIONS AT CONTRACTOR'S OPTION. HOWEVER, SHOP DRAWINGS FOR ALL FIELD WELDED CONNECTIONS MUST BE SUBMITTED AND APPROVED BY THE EOR PRIOR TO BEGINNING FABRICATION.
6. USE $\frac{3}{4}$ " A325N BOLTS (MIN).
7. FOR COMPLIANCE WITH STRUCTURAL INTEGRITY REQUIREMENTS OF 2012 IBC 1614.3.2.2, CONNECTIONS SHALL HAVE THE MINIMUM HORIZONTAL AXIAL TENSILE STRENGTH INDICATED. VERTICAL REACTION AND HORIZONTAL TENSILE FORCE NEED NOT ACT CONCURRENTLY, EXCEPT AT BRACED FRAME MEMBERS, WHERE FORCES WILL ACT CONCURRENTLY.

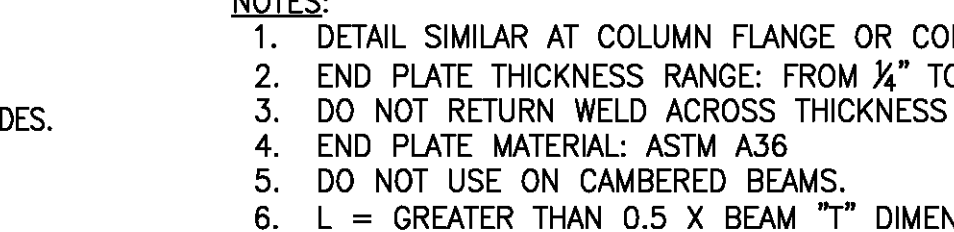


REVIEW WITH SER.
6. SEE DETAILS & SECTIONS FOR BEAMS REQUIRING
7. DETAIL CONNECTIONS IN CONFORMANCE WITH
8. GRIND COPES FOR GROUP 4 AND 5 SECTIONS



SEE TS-1A THROUGH TS-1E FOR ADDITIONAL INFORMATION.
DESIGN MOMENT NEED NOT EXCEED MEMBER MOMENT CAPACITY.

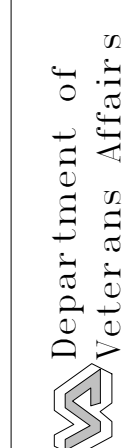
GRAVITY MOMENT CONNECTION
SCHEDULE N.T.S.

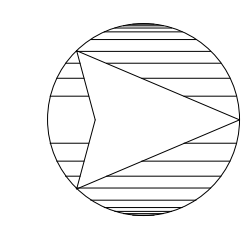


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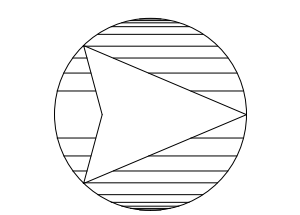








<u>EQUIPMENT DESIGN PARAMETERS</u>		
SET ALL EQUIPMENT ON PRE-FABRICATED CURBS ON METAL DECK.		
<u>NAME</u>	<u>DESIGN WEIGHT</u>	<u>PLAN DIMS</u>
AHU-1	160 KIPS	50'x40'
CHILLER	8 KIPS	7'-4"x16'-6"
ACCU	1 KIP	5'x3'

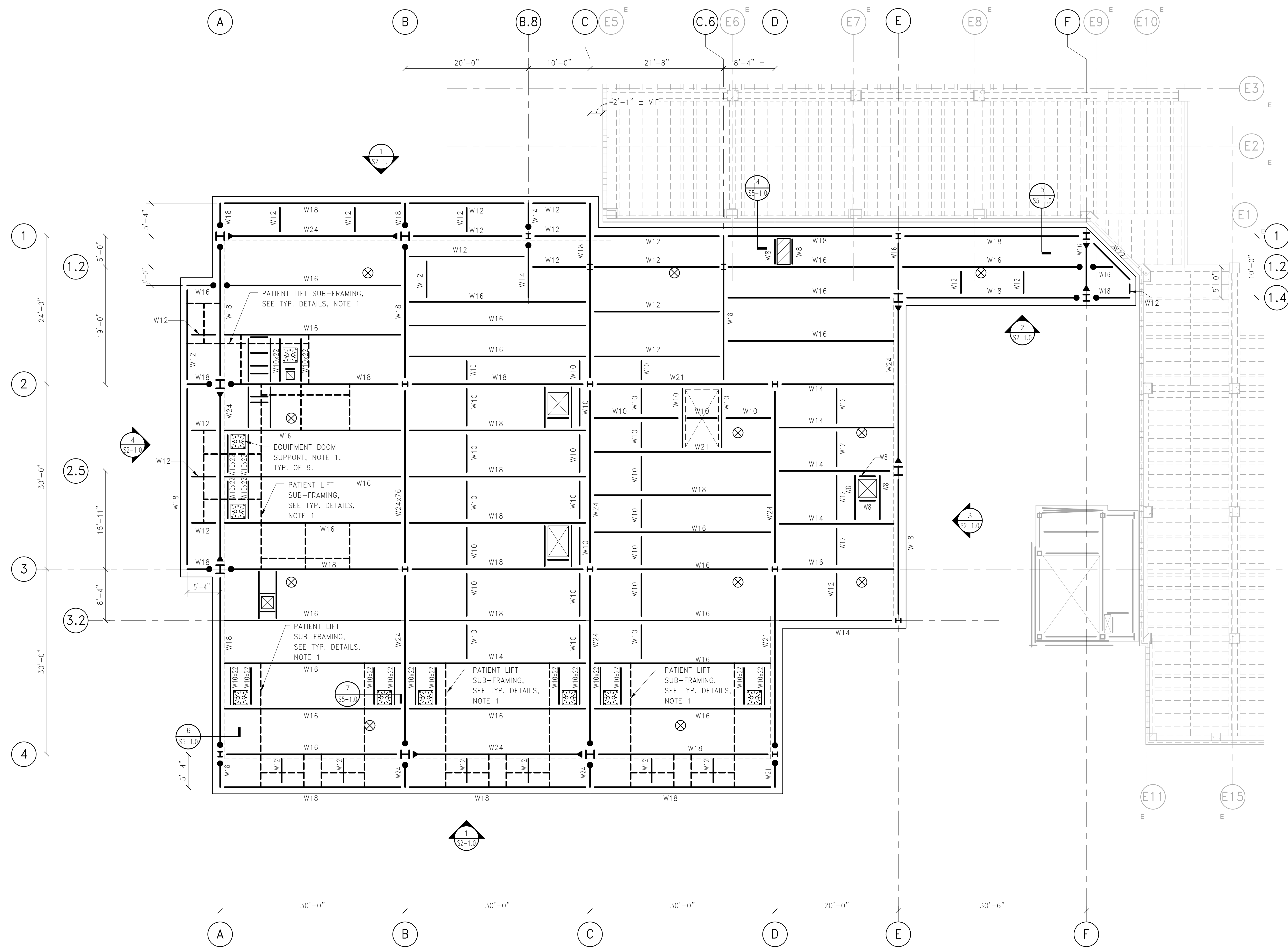


Department of
Veterans Affairs

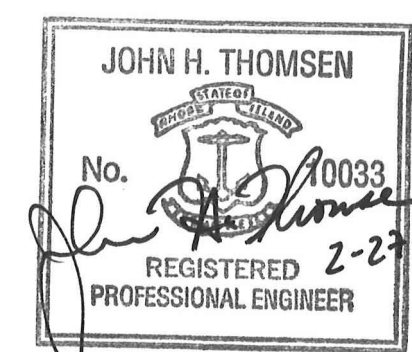
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KEY PLAN

S1-2.3



SECOND FLOOR CEILING EQUIPMENT PLAN (ROOF FRAMING)

[illegible]

CONSULTANTS

CIVIL
PARE Corporation
8 Blackstone Valley Place
Lincoln, RI 02865

STRUCTURAL
Simpson Gumpertz & Heger
41 Seyon Street
Waltham, MA 02453

MEP / FP
Thompson Consulting, Inc.
525 Mill Street
Marion, MA 02738

COST
D.G. Jones
3 Baldwin Green Common
Suite 202
Woburn, MA 01801

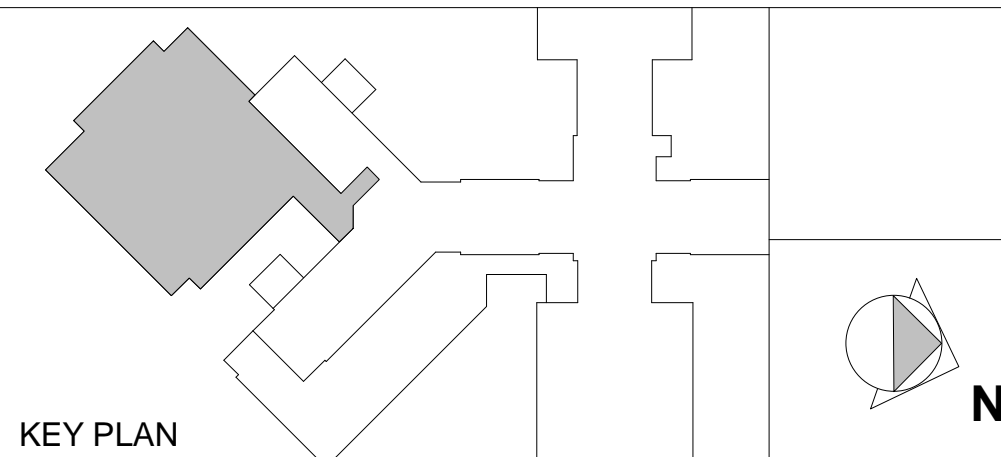
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Drawing Title
**SECOND FLOOR CEILING
EQUIPMENT PLAN**

Drawn By:	CMB
Checked By:	KAK/MJB
Approved By:	JHT

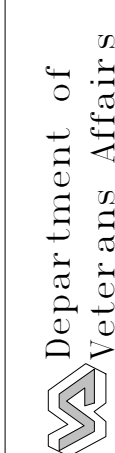
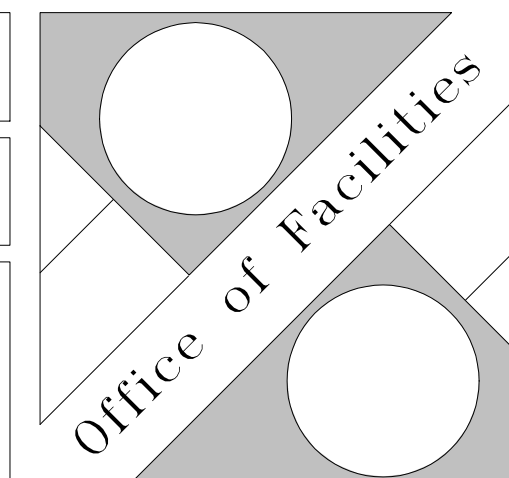
Project Title
**REPLACE/RELOCATE
DEFICIENT ICU**

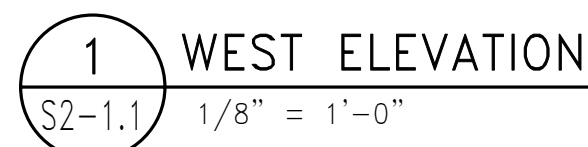
Building #	Scale
1	1/8" = 1'-0"
Location	
PROVIDENCE, RI	

Date
2/27/2015

VA Project No.
650-324

Drawing No.
S1-3.





WEST ELEVATION

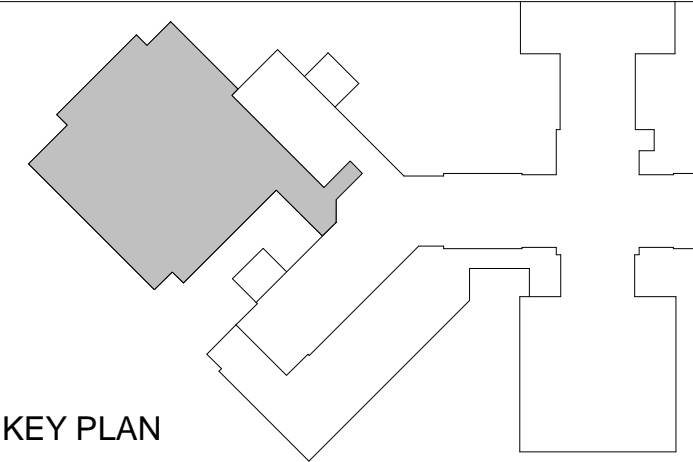
$$\frac{1}{8}'' = 1'-0''$$

ARCHITECT

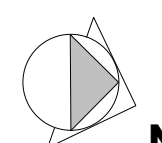
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KEY PLAN



N

Drawing Title
EXTERIOR ELEVATIONS

Drawn By: CME

Checked By: KAK/MJB

Approved By: JHT

Project Title
**REPLACE/RELOCATE
DEFICIENT ICU**

Building #

Location
PROVIDENCE, RI

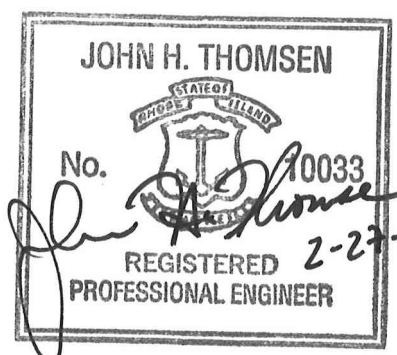
Scale
1/8" = 1'-0"

Date
2/27/2015

VA Project No.
650-324

Drawing No.

S2-1.1



Office of Facilities

Department of
Veterans Affairs

1 BASE DETAIL
 $\frac{3}{4}" = 1'-0"$

COLUMN SCHEDULE NOTES

- ### COLUMN SCHEDULE SYMBOLS LEGEND

COLUMN SCHEDULE SYMBOLS LEGEND (CONT.)


Technical drawing of a square plate with a central I-beam. The plate is 1'-0" square. The I-beam has a height of 1'-0" and a flange width of 2 1/2". The flanges are 5/16" thick. The web is 1/2" thick. The plate has four circular holes, one in each quadrant. The I-beam is centered on the plate.

Technical drawing of a 12-inch wide flange I-beam section. The drawing shows a cross-section with dimensions: total width 12 inches, flange thickness $\frac{5}{16}$ inch, web thickness $\frac{5}{16}$ inch, and flange height $1\frac{1}{4}$ inches. The web is labeled "WEB" and the flanges are labeled "BOTH FLANGES". The section is labeled "AR-1".


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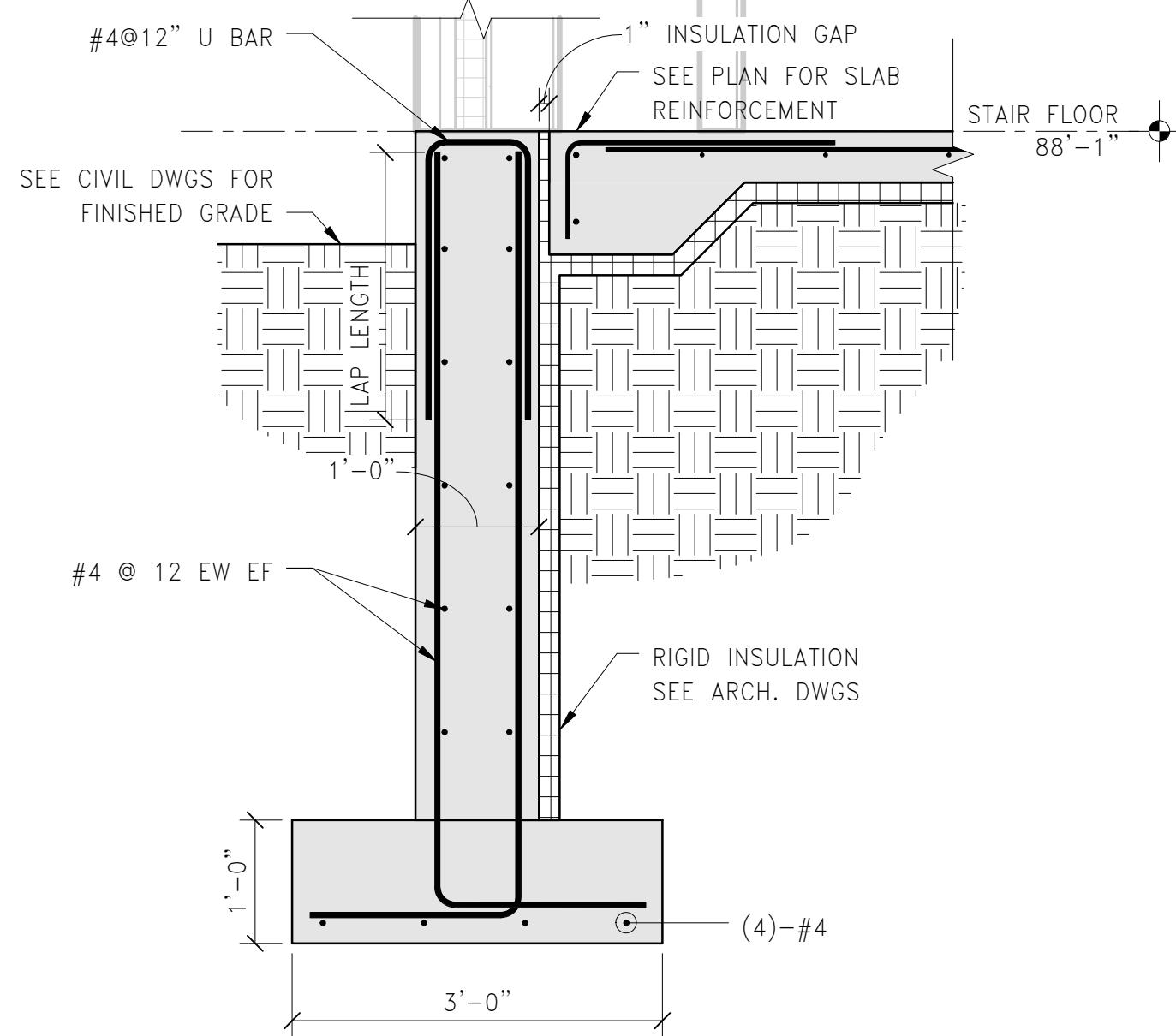
KEY PLAN

Drawn By:	CMB
Checked By:	KAK/MJB
Approved By:	JHT

Building #
1

Location
PROVIDE

Drawing No.
S3-1



Architectural section drawing of a wall and floor assembly at a stair floor level. The drawing shows a cross-section of a wall with various layers and reinforcement. Key features include:

- #4 CONTINUOUS IN CURB
- SEE CIVIL DWGS FOR FINISHED GRADE
- 1" INSULATION GAP
- 6"
- 1/4"
- #4 @ 12 EW EF
- SEE PLAN AND TYP. DETAILS FOR SLAB REINFORCEMENT
- STAIR FLOOR 88'-1"
- #4 @ 12 HOOKED BAR UNDER SHELF
- RIGID INSULATION SEE ARCH. DWGS.
- SEE DETAIL 1/54-1.0 FOR BALANCE OF INFO

(E) MECH. PAD.
SEE CIVIL DWGS.

(2)-#4 DOWELS @
3" OC @ TOP OF PIER

(E) TOW. EL. = 89'-4" ± VIF

STAIR FLOOR
88'-1"

SEE P3/S3-1.1 FOR
PIER REINFORCEMENT

(E) MECH. WELL
WALL. SEE PLAN

(E) WALL
1'-0" ±

DOWELS TO MATCH PIER
VERTICAL BARS. SET WITH
ADHESIVE AND MIN. 8" EMBED.

(6)-#6

(9)-#5 HOOKED
ADHESIVE DOWELS
WITH 6" EMBED. MIN.

2" CLR.

2'-0"

1'-0" ± VIF

6" MIN.

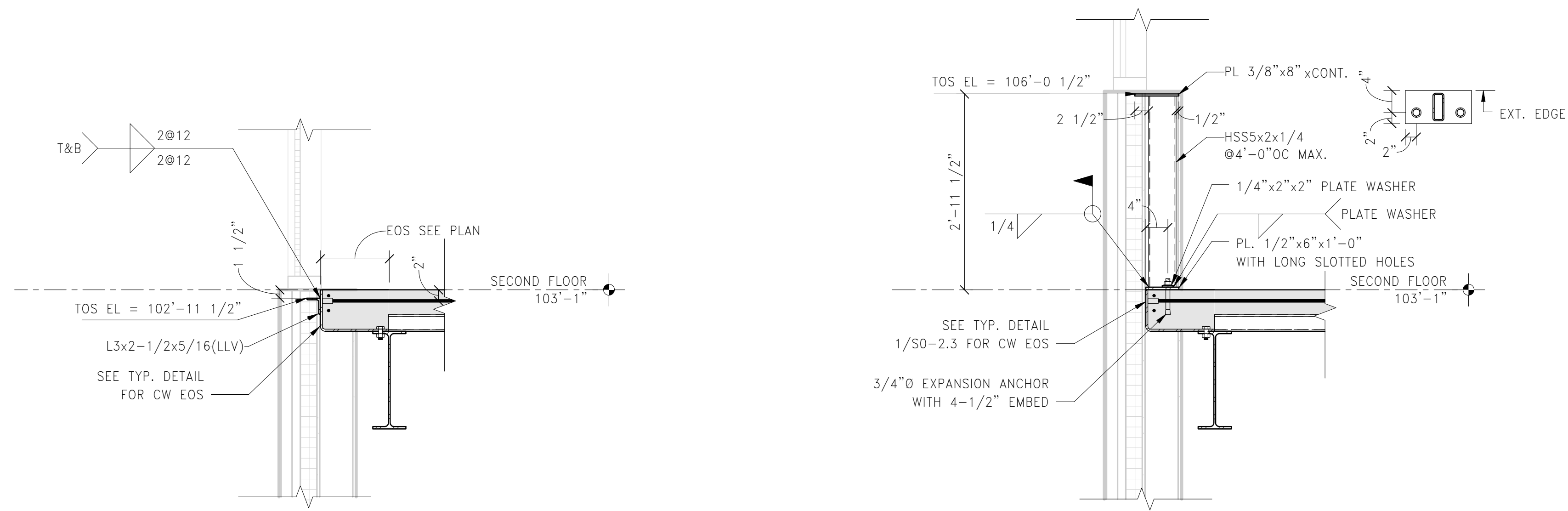
[illegible]

Department of
Veterans Affairs

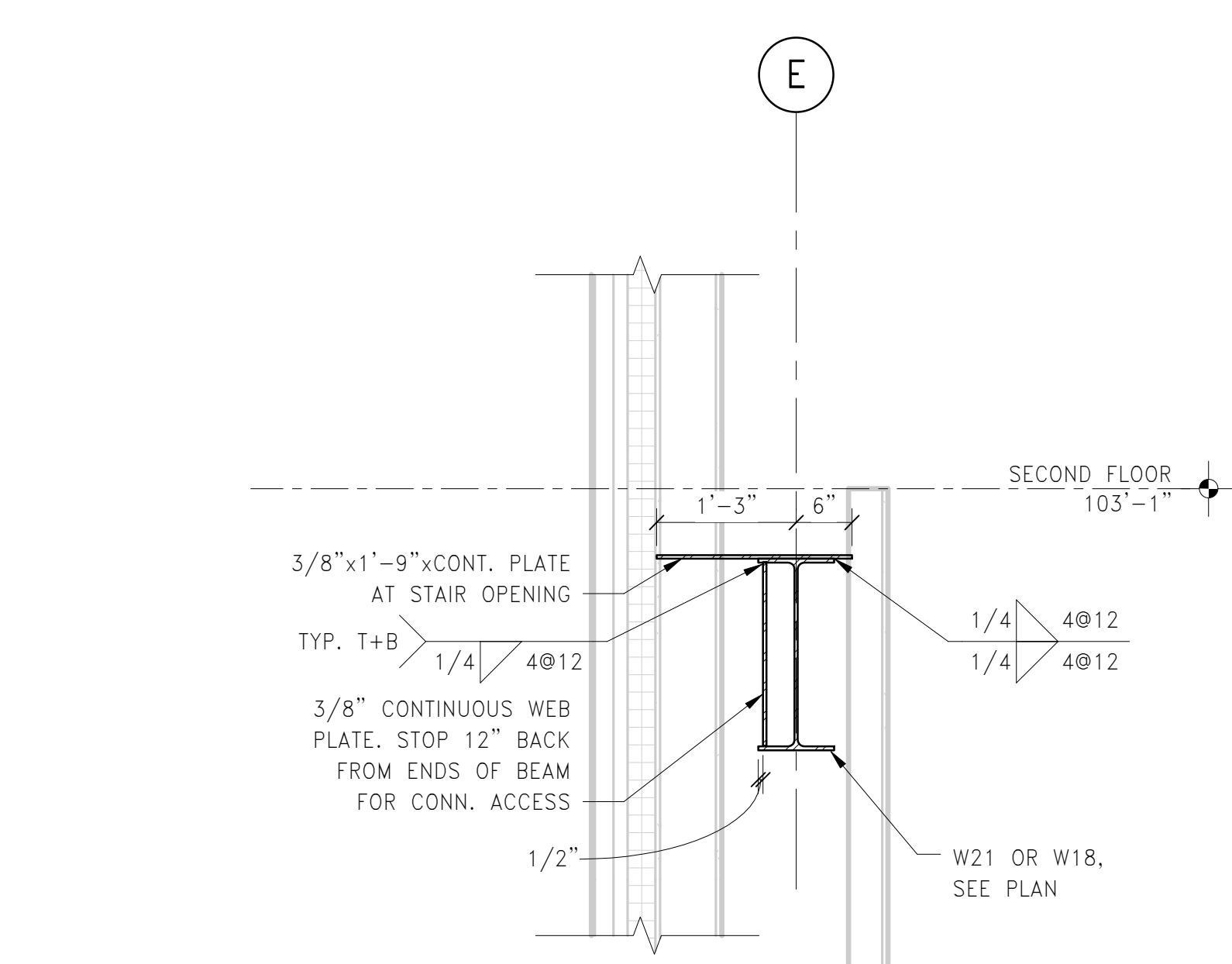
JOHN H. THOMSEN

No. 10033

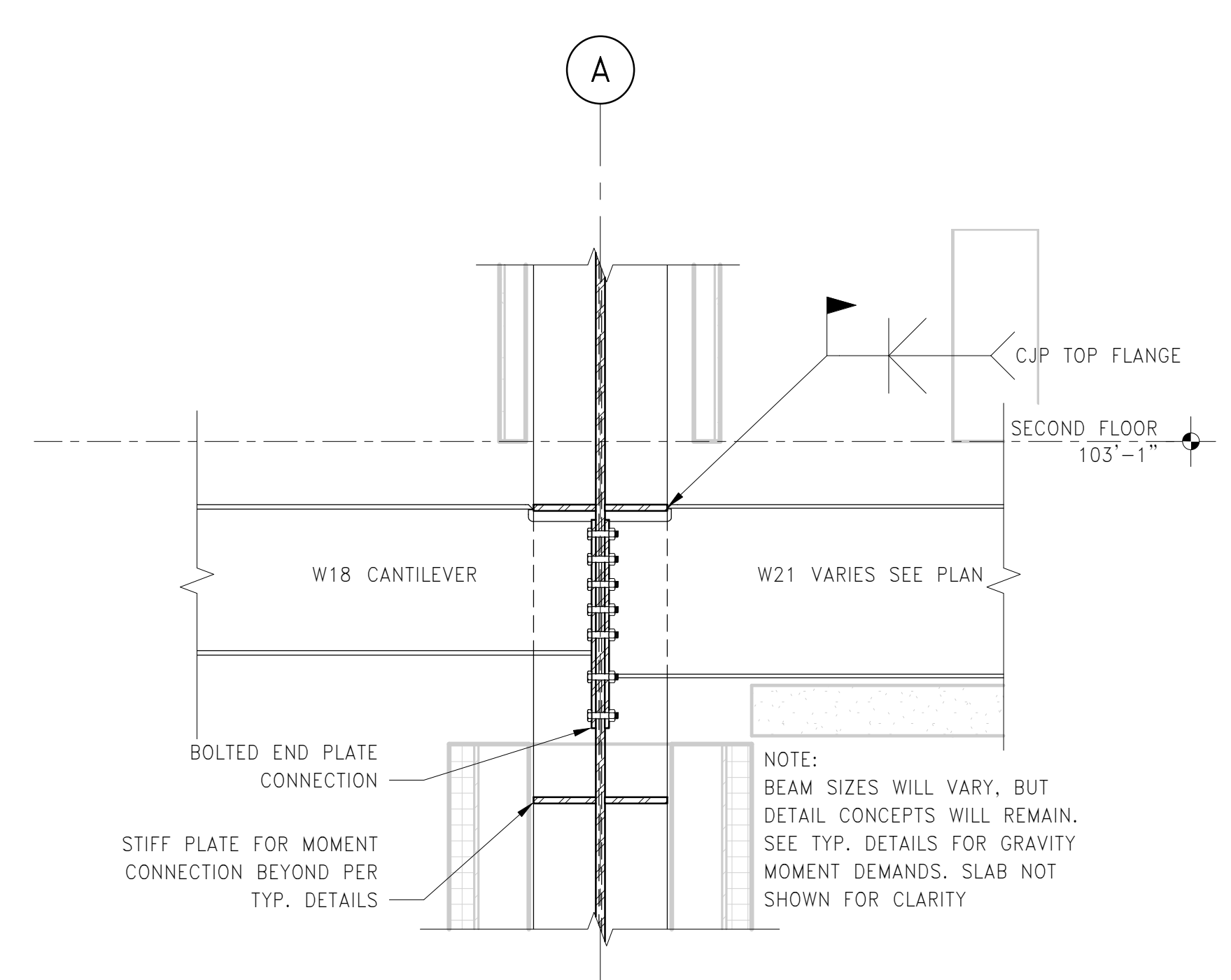
REGISTERED PROFESSIONAL ENGINEER



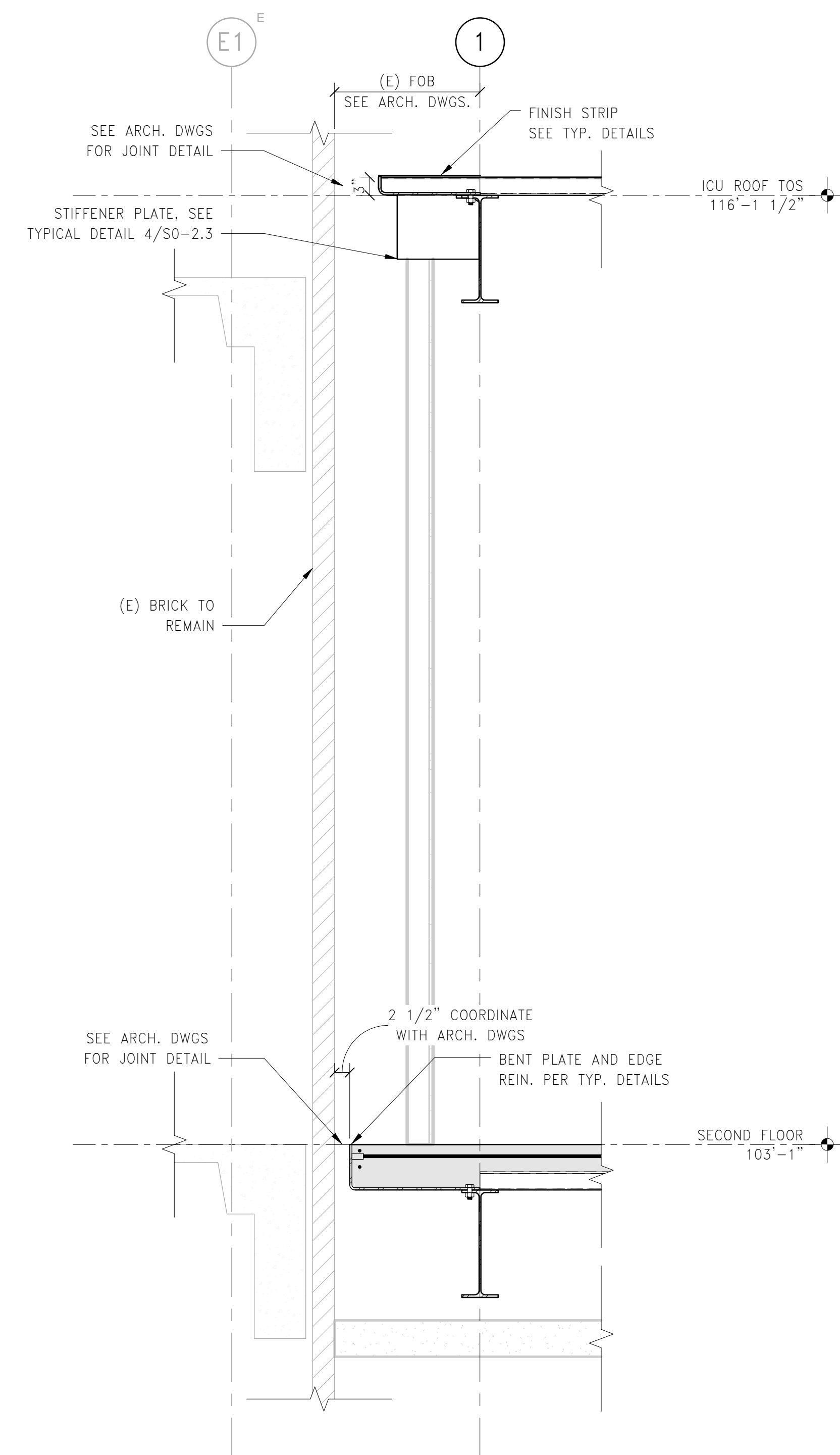
1A SECTION: CURTAIN WALL RAISED SILL SUPPORT FRAME
S5-1.0 3/4" = 1'-0"



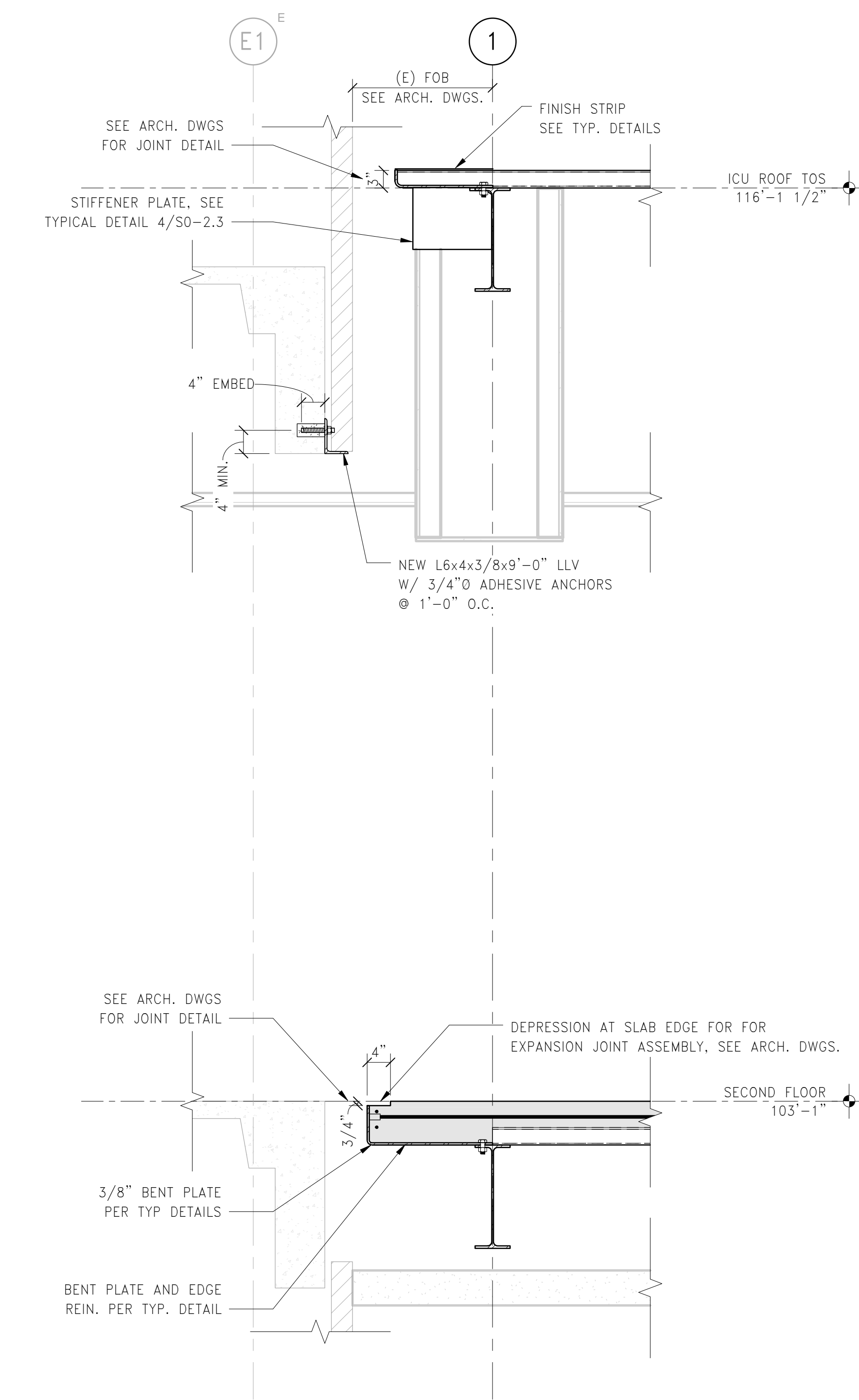
2 PLATE AT PERIMETER STAIR GIRDER
S5-1.0 $\frac{3}{4}$ " = 1'-0"



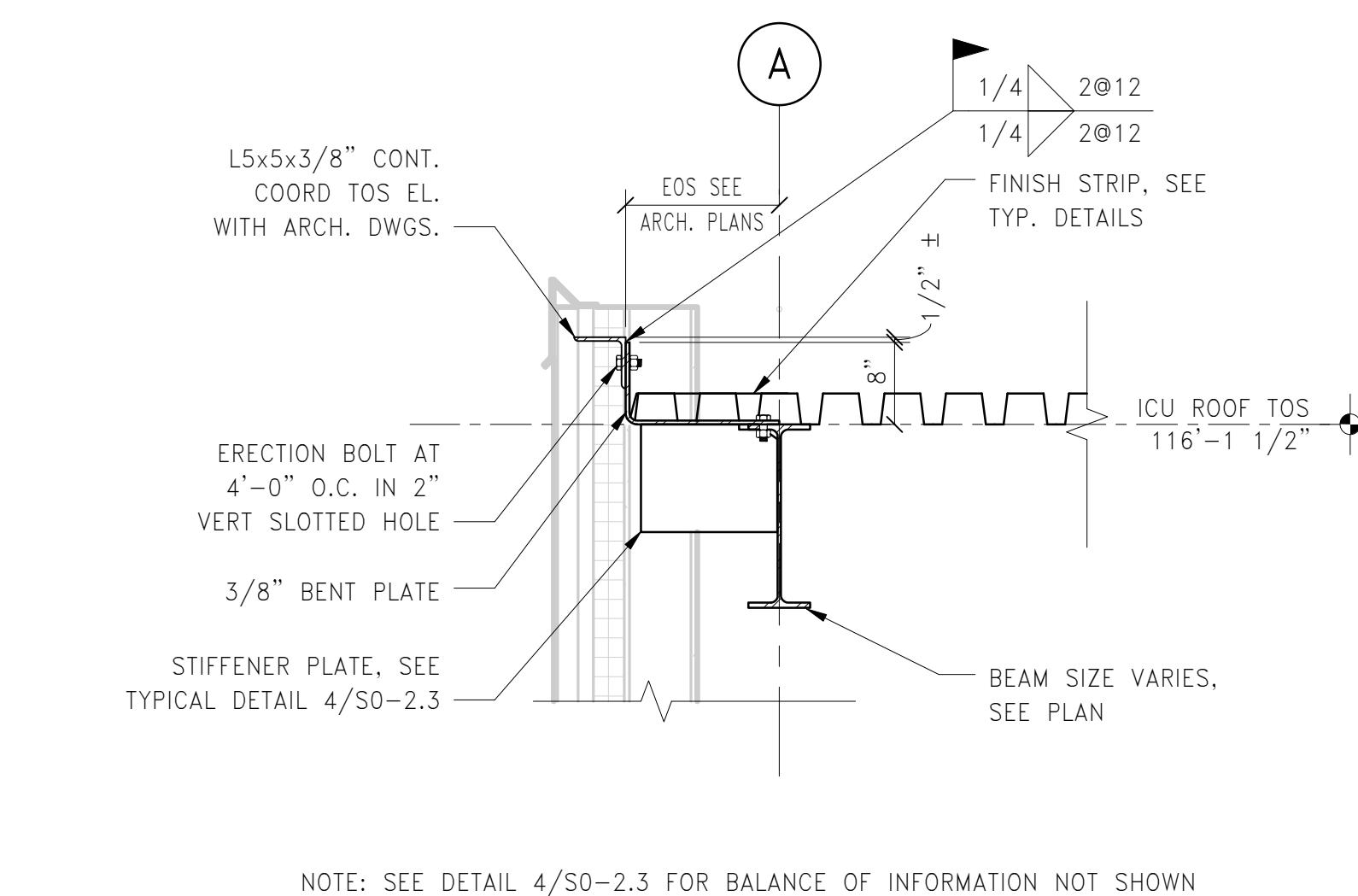
3 SECTION: TYPICAL PERIMETER CANTILEVER CONNECTION



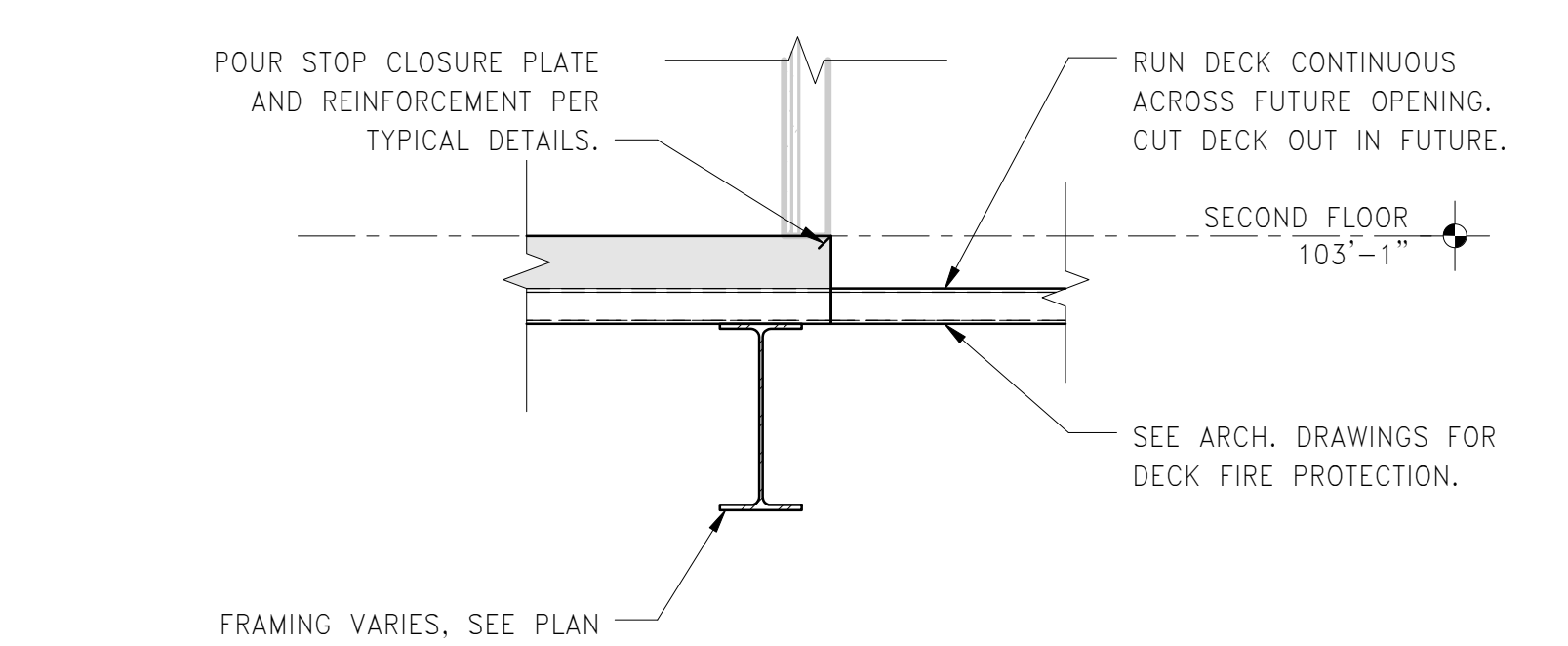
4 SECTION: EOS JOINT AT EXISTING BLDG.
S5-1.0 3/4" = 1'-0"



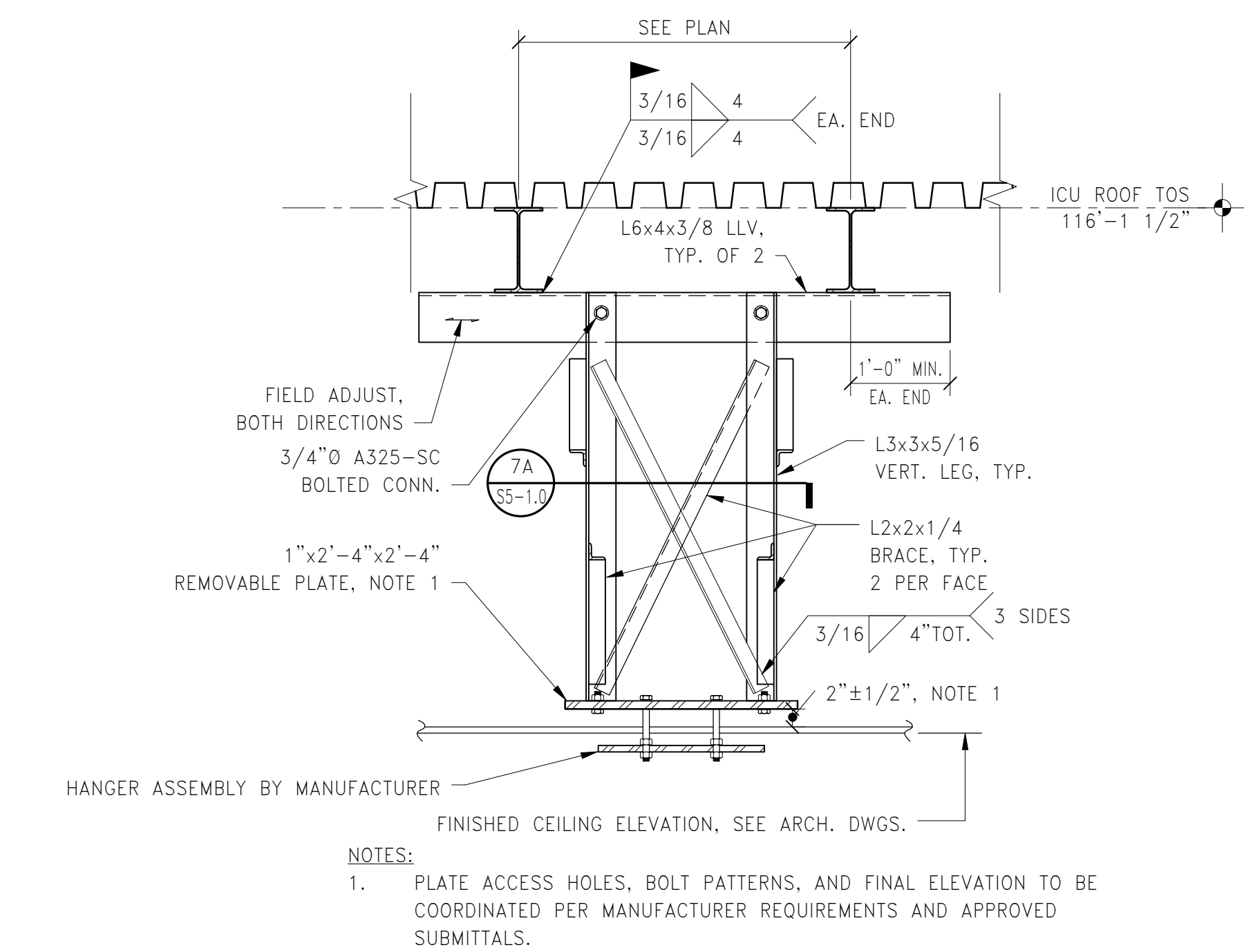
5 SECTION: EOS JOINT AT CORRIDOR TO EXISTING BLDG.
S5-1.0 3/4" = 1'-0"



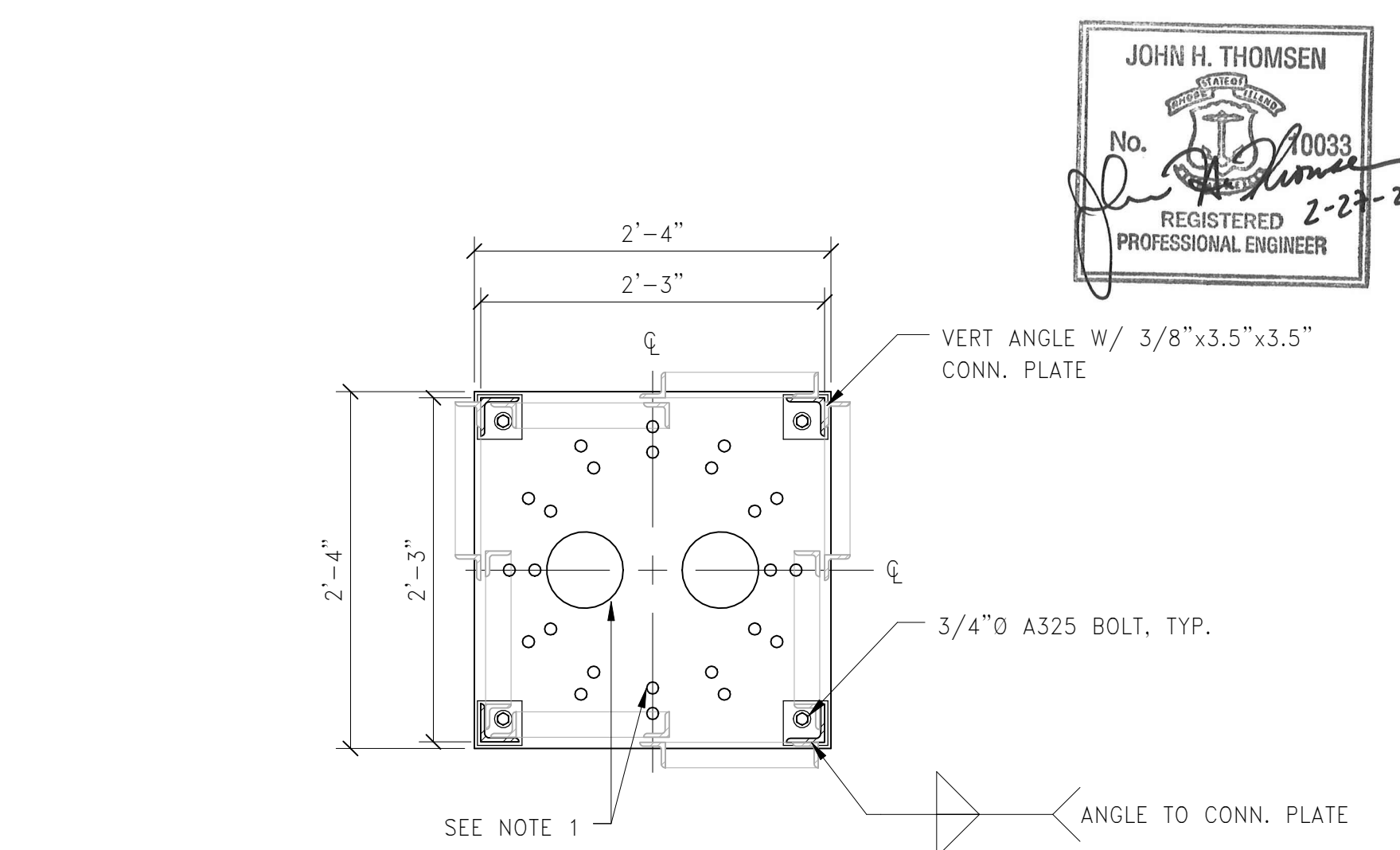
6 SECTION: TYPICAL ROOF EOS
S5-1.0 3/4" = 1'-0"



8 SECTION: SHAFT KNOCK OUT PANEL
S5-1.0 3/4" = 1'-0"



7 SECTION: OPERATING ROOM EQUIPMENT BOOM SUPPORT
S5-1.0 3/4" = 1'-0"



7A EQUIPMENT SUPPORT PLATE PALN DETAIL
S5-1.0 1" = 1'-0"

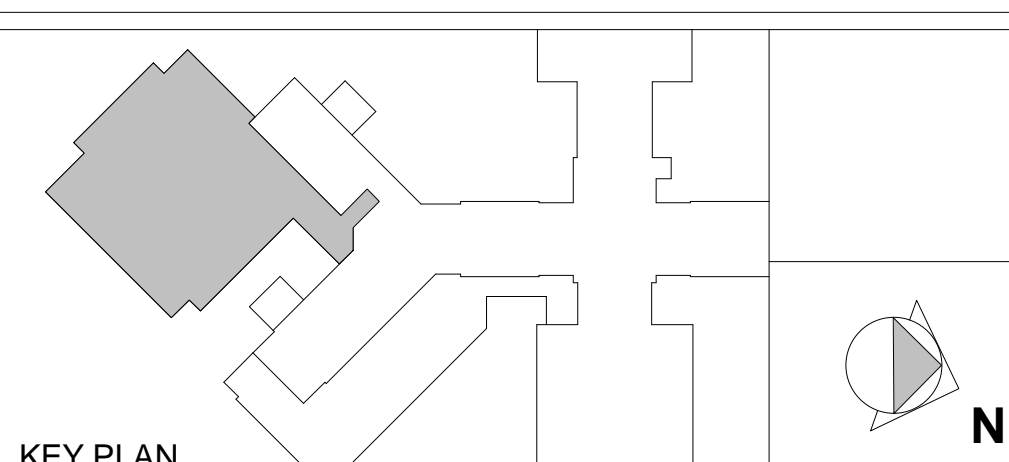
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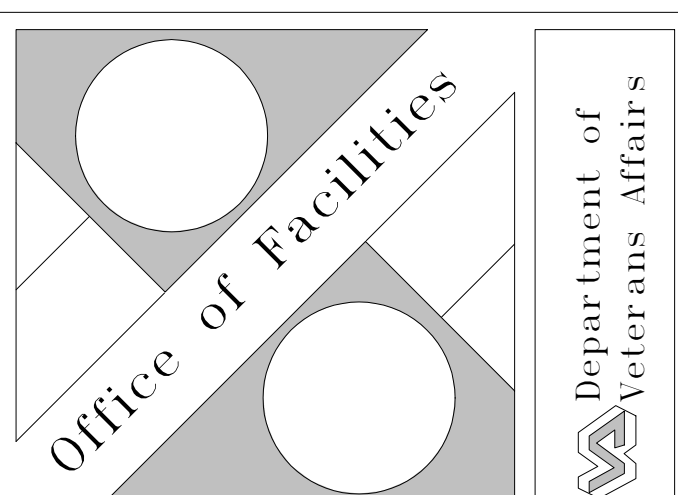
Drawing Title	
STEEL SECTIONS AND DETAILS	
Drawn By:	CMB
Checked By:	KAK/MJB
Approved By:	JHT

Project Title	
REPLACE/RELOCATE DEFICIENT ICU	
Building #	Scale
1	As indicated
Location	
PROVIDENCE, RI	

Date
2/27/2015

VA Project No.
650-324

Drawing No.
S5-1.0



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